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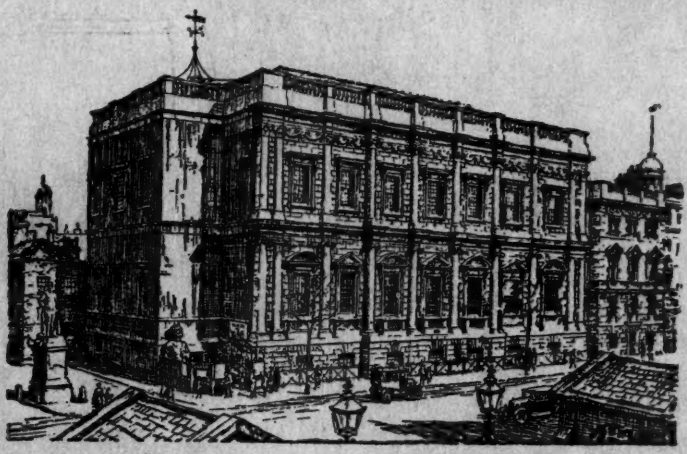
JOURNAL



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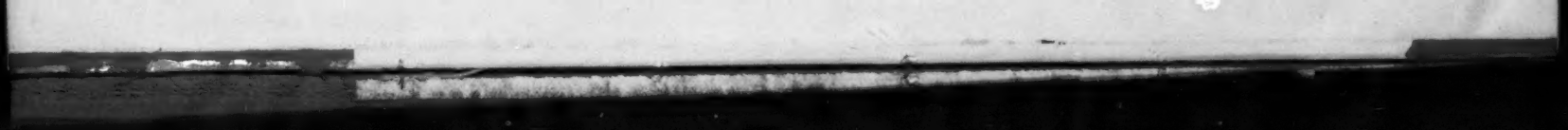

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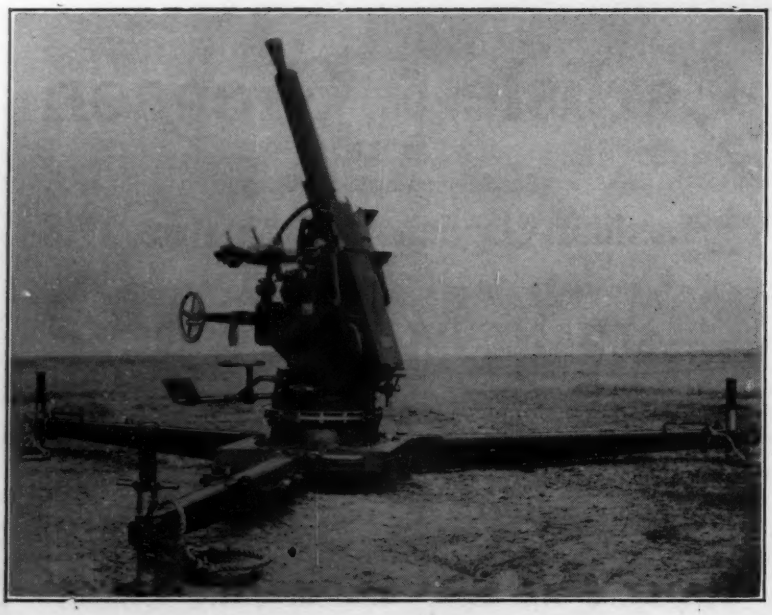

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May, 1936

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The Council have decided that owing to the impossibility of making detailed arrangements for the accommodation of Members to witness the Coronation Procession until much later in the year, applications shall be accepted on and after 1st December, 1936, but not before that date.

It is hoped to communicate particulars of these arrangements in the JOURNAL to be published on the 15th November, 1936.

Chairman of the Council

General Sir Felix Ready, G.B.E., K.C.B., C.S.I., C.M.G., D.S.O., has been elected Chairman of the Council for 1936–37.

Vice-Chairman of the Council

Admiral the Earl of Cork and Orrery, G.C.V.O., K.C.B., has been elected Vice-Chairman of the Council for 1936–37.

Council

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General Sir W. M. St. G. Kirke, K.C.B., C.M.G., D.S.O. has succeeded Lieutenant-General Sir C. Bonham-Carter, K.C.B., C.M.G., D.S.O., as an ex-officio member of the Council on taking up the appointment of Director-General of the Territorial Army.

Major-General the Viscount Gort, V.C., C.B.E., D.S.O., M.V.O., M.C., has succeeded Major-General C. C. Armitage, C.B., C.M.G., D.S.O., as an ex-officio member of the Council on taking up the appointment of Commandant of the Staff College, Camberley.

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Captain R. M. Giddy, Royal Marines.
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Captain R. G. Clayton, D.S.C., R.D., R.N.R.
Captain Sir Bryan G. Godfrey-Faussett, G.C.V.O., C.M.G., R.N.
Midshipman J. B. Lamb, R.N.
Lieutenant-Commander J. D. Crossman, R.N.
Lieutenant-Commander R. W. Moir, R.N.
Lieutenant H. H. H. Mulleneux, R.N.
Commander C. E. C. Robinson, R.N.
Lieutenant-Commander S. J. S. Boord, R.N.
Lieutenant G. W. Murray, R.N.
Lieutenant G. P. D. Pease, Royal Marines.
Lieutenant R. St. C. Arkwright, Royal Marines.
Captain C. E. C. Ransome, Royal Marines.
Captain R. D. Sims, Royal Marines.
Lieutenant G. N. Beaumont, R.N.
Commander W. H. N. Yonge, R.N.
Lieutenant H. C. O. Bull, R.N.
Sub-Lieutenant N. R. Corbet-Milward, R.N.
Lieutenant G. K. Martyn, Royal Marines.
Captain P. S. E. Maxwell, R.N.
Lieutenant G. Affleck-Graves, R.N.
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Captain R. B. T. Miles, R.N.
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Captain Sir E. J. Headlam, Kt., C.S.I., C.M.G., D.S.O., Royal Indian Navy
Sub-Lieutenant D. B. G. Dumas, R.N.
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Commander R. G. Bowes Lyon, M.V.O., R.N.
Lieutenant P. W. Gretton, R.N.
Lieutenant E. Hale, R.N.
Lieutenant A. O. Johnson, R.N.
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Captain J. E. R. Stephens, late Donegal Artillery.

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Lieutenant A. C. Smith, Malay States Volunteer Regiment.
Lieutenant R. N. Anderson, The King's Own Royal Regiment.
2nd Lieutenant J. Gilliat, Irish Guards.
2nd Lieutenant J. C. K. Harrington, London Irish Rifles, T.A.
Major C. G. Carruthers, M.C., The Border Regiment.
Captain E. P. Dickson, Royal Engineers.
Captain R. E. S. Gooch, The Life Guards.
Captain D. Colville, The King's Shropshire Light Infantry.
Captain M. Elrington, The Border Regiment.
Lieutenant J. K. MacFarlan, Royal Artillery.
2nd Lieutenant H. L. S. Young, Irish Guards.
2nd Lieutenant A. E. Cameron, Scots Guards.
2nd Lieutenant S. J. Cuthbert, Scots Guards.
2nd Lieutenant T. F. Rivers-Bulkeley, Scots Guards.
2nd Lieutenant W. N. Seymour, Scots Guards.
2nd Lieutenant J. W. G. Ormiston, The Middlesex Regiment.
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Lieutenant D. W. S. Miller, Royal Army Service Corps.
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Lieutenant R. H. A. Foster, Royal Artillery.
2nd Lieutenant H. F. C. Farrington, Royal Artillery.
2nd Lieutenant P. J. Hearn, Royal Artillery.
Lieutenant R. A. Cook, Royal Artillery.
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Captain W. E. Bush, M.C., The Green Howards.
Captain M. French, The Royal Irish Fusiliers.
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Captain C. P. Jones, Royal Engineers.
Lieutenant B. H. Craig, The Buffs.
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Captain J. E. A. Firth, Royal Artillery.
Bt. Colonel F. C. Roberts, V.C., D.S.O., O.B.E., M.C., The Royal Warwickshire Regiment.
Lieutenant P. J. White, Royal Artillery.
Captain F. M. Hill, Royal Engineers.
Lieutenant C. V. O'N. McNabb, The Seaforth Highlanders.
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Lieutenant T. de F. Jago, Royal Horse Artillery.

Lieutenant D'A. J. D. Mander, The Green Howards.
Captain G. D. V. Russell, The East Lancashire Regiment.
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Captain H. C. B. Rogers, Royal Signals.
Lieutenant A. B. Hudson, Royal Artillery.
Lieutenant F. H. W. Barnett, 60th Rifles.
Lieutenant D. MacN. C. Rose, The Black Watch.
Captain S. R. G. Scott, Royal Engineers.
Lieutenant P. J. Johnston, The Seaforth Highlanders.
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Captain H. C. Stockwell, The Royal Welch Fusiliers.
Lieut.-Colonel P. V. Harris, 17th/21st Lancers.
Lieut.-Colonel C. G. S. Irvine, The King's Own Royal Regiment.
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Lieutenant A. W. Tyler, Royal Artillery.
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Captain H. T. de B. Lipscomb, Royal Tank Corps.
Lieutenant G. C. Nelson, Royal Signals.
Lieutenant F. W. Grove, Royal Army Service Corps.
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Colonel Alexander Duncan, Comdg. The Bengal Nagpur Railway Battalion, A.F. (I.).
Captain H. J. Hare, 2nd K.E.O. Gurkha Rifles, I.A.
Major W. A. Platt, The Sherwood Foresters.
Captain R. B. Longe, The King's Shropshire Light Infantry.

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Lieut.-Colonel H. L. Cooper, late R.F.C.
Flight-Lieutenant G. M. Buxton, R.A.F.
Flight-Lieutenant G. P. Charles, R.A.F.
Lieutenant J. O. Robson, late R.A.F.
Air Marshal Sir Hugh C. T. Dowding, K.C.B., C.M.G.

Squadron-Leader L. Darvall, M.C., R.A.F.
Air Commodore J. S. T. Bradley, O.B.E.
Flight-Lieutenant T. U. C. Shirley, R.A.F.
Flying-Officer R. S. Ryan, R.A.F.
Flight-Lieutenant D. H. F. Barnett, R.A.F.
Flight-Lieutenant G. D. Harvey, D.F.C., R.A.F.
Flight-Lieutenant H. F. G. Southey, R.A.F.
Flight-Lieutenant C. A. Bell, R.A.F.
Flight-Lieutenant J. Warburton, R.A.F.
Group-Captain C. O. F. Modin, R.A.F.
Air Commodore W. Tyrrell, D.S.O., M.C., M.B., B.Ch., D.P.H.
Wing-Commander D. Colyer, D.F.C., R.A.F.
Wing-Commander D. L. Allen, A.F.C., R.A.F.
Flight-Lieutenant G. G. Barrett, R.A.F.
Flight-Lieutenant W. H. Merton, R.A.F.
Flight-Lieutenant B. D. Nicholas, R.A.F.
Flight-Lieutenant F. J. St. G. Braithwaite, R.A.F.
Flight-Lieutenant H. P. Fraser, R.A.F.
Air Vice-Marshal C. T. Maclean, C.B., D.S.O., M.C.
Squadron-Leader T. M. Williams, M.C., D.F.C., M.A., R.A.F.
Flight-Lieutenant H. Waring, R.A.F.
Flight-Lieutenant J. V. Yonge, R.A.F.

CIVILIAN MEMBERS

The Reverend Percy Sumner.
R. J. T. Hills.

Suspension of Entrance Fee

As a temporary measure and especially to enable as large a number of officers as possible to avail themselves of the facilities offered by the Institution during the period while His Majesty's Forces are being increased, the Entrance Fee has been suspended.

Officers of all ranks whose names appear on the current official lists can, therefore, join the Institution by paying the annual subscription of £1 5s. only. Membership will date from the 1st January.

Sub-Lieutenants and Sub-Lieutenants (E) R.N.—Life Membership

The Admiralty have approved that the £10 prize awarded to Sub-Lieutenants and Sub-Lieutenants (E) who obtain all first-class certificates when passing for Lieutenants and Lieutenants (E) R.N., may be devoted to the payment of half their Life Membership of the Royal United Service Institution.

Gold Medal Essay (Military), 1936

The following subject has been selected :—

> "Tactical and administrative movements in modern armies have been radically affected by the introduction of the internal combustion engine. Discuss the possibilities of its use in the British Army in assisting to overcome the strength of modern defence and in countering the increasing threat of air action."

Change of Address

Members are reminded that they are responsible for keeping the Secretary informed of any change of address. Non-receipt of the JOURNAL is almost invariably attributable to the fact that the member has not notified his movements.

LIBRARY

Facilities for Borrowing Books

The special attention of Members who are paying the comprehensive annual subscription of £1 5s. od., is invited to the fact that they are thereby entitled to the full privileges of the Lending Library without further charge. These include the right to have sent to them not more than four volumes at a time on loan, the Member paying postage both ways.

Old Members who have not wished to conform to the new arrangement and who are still paying the original subscription of £1 1s. od., must pay an additional subscription of 10s. per annum in order to belong to the Lending Library.

All Members are, of course, free to use the Library when they visit the Institution.

Rules Governing Return of Books

The attention of Members is invited to the following Regulations governing the retention and return of books :—

(1) Certain books, for which there is a special demand, must not be retained longer than a fortnight after the date of receipt. A notice to this effect will be found in the book.

(2) In the United Kingdon.—Books must normally be returned within one month of the date of issue ; but the Librarian is authorized to make extensions of one month at a time on application by a Member, up to a maximum of three months from the date of issue, if the work is not required by another Member.

(3) Stations Abroad.—When books are sent to Members abroad the same rules apply as for the United Kingdom, except that " the date of receipt is substituted for " the date of issue."

N.B.—IN VIEW OF THE INCREASING DEMAND FOR BOOKS FROM THE LENDING LIBRARY, IT IS ESSENTIAL IN THEIR OWN INTERESTS THAT MEMBERS SHOULD ADHERE STRICTLY TO THE RULES GOVERNING THE RETURN OF BOOKS. FAILURE TO DO SO IS CAUSING MUCH INCONVENIENCE, AND INVOLVING THE INSTITUTION IN UNNECESSARY EXPENSE AND CLERICAL LABOUR.

JOURNAL

February Journals

Owing to the influx of new members, there has been a heavy demand for the JOURNAL of February, 1936. Will any member who has finished with his copy kindly return it in order to assist in replenishing the stock.

MUSEUM

Special Exhibition—"Admirals All"

A Special Exhibition, now showing, entitled " Admirals All " is devoted to personal relics of famous Sea Commanders, mementoes of their Victories, and Models of their Ships.

The Institution is indebted to the Countess Jellicoe for the loan of the Orders and Medals, Presentation Sword, and other relics of the late Admiral-of-the-Fleet the Earl Jellicoe ; to the Earl Beatty for the Orders, Medals, Presentation Sword, and other relics of the late Admiral-of-the-Fleet the Earl Beatty ; to Admiral Sir William Goodenough, G.C.B., M.V.O. ; Admiral R. A. Hopwood, C.B. ; Rear-Admiral St. A. B. Wake, C.B. ; Colonel R. H. Beadon ; Commander E. A. Ommanney, R.N. ; Mr. Robert Spence ; Mr. Bernard Gribble ; Mr. G. B. Nicholson ; Mr. A. C. Jackson ; and Mr. C. Whitaker for the loan of pictures, models, or relics.

Air Service Exhibition

It is hoped to organize an Exhibition in time for the Summer holidays which will illustrate—in pictures, relics, and models—gallant actions, notable events, and typical developments in the history of the Royal Air Force, the Royal Flying Corps,

and the Royal Naval Air Service. Members who would be willing to lend *small* contributions to this Exhibition are requested to communicate with the Secretary. Any such items should be duly authenticated and of historical interest.

Additions

(8819) Russian rouble notes and piece of a German watch, taken by a Russian Officer.—Presented by Captain R. Dewar-Durie.

(8820) Letter from Major-General H. Macdonald to Commandant de Villiers, written in the field.—Presented by E. M. Barry.

(8821) Officers tunic, 54th Regiment, 1824.—Presented by F. E. Hills.

(8822) Company Colour, Bloomsbury and Inns of Court Association.—Presented by the Officers of the Inns of Court Regiment.

(8823) Water colour picture of the survivors of the Charge of the Light Brigade at the Coronation of King George V.—Presented by P. Cohen.

(8824) Head-dress, Loyal Warden Volunteers, 1798.—Presented by the Letchworth Museum.

(8825) Oil painting of a Review of the Fleet by Queen Victoria.—Presented by Mrs. Christian.

(8826) Chinese Seal of the officer commanding the left battalion of the Tsin-Pao Regiment, captured at Pei Ho Fort, 1858. Presented by Vice-Admiral Sir H. P. Douglas, K.C.B., C.M.G.

(8827) Shoulder belt plate, 25th King's Own Borderers.—Presented by Mrs. Gardner.

(8828) Iron ration used during the South African War.—Presented by C. F. Walker.

(8829) Uniform, cocked hat, and sword of an officer of the Yeomen of the Guard.—Presented by Mrs. La Terriere.

(8830) Engraving "Intellect and Valour of Britain."—Presented by Miss Liddell.

(8831) Sabretache, pouch and girdle, 7th Queen's Own Hussars.—Presented by Mrs. Woodfall.

(8832) Helmet and cap, R.M.C., 1881.

(8833) Naval shot fired at the battle of Copenhagen, 1807.—Presented by W. N. Goldbrandsen.

(8834) Piece of the pistol and the warhead of the German torpedo which struck H.M.S. "Marlborough" at Jutland.—Presented by Lieut.-Commander T. W. S. Britton, R.N.

(8835) Jade ear-ring taken from a Maori chief at Mahotaki Taranaki.—Presented by Flight-Lieutenant D. H. Carey.

(8836) Two R.A.O.C. caps of 1850 and 1895.—Bequeathed by Major N. H. C. Dickinson.

Loans

(3626) General Officer's Uniform.—Lent by Lady Browning.

(3627) Medals and Orders of Admiral of the Fleet Earl Jellicoe.—Lent by the Countess Jellicoe.

(3628) Bust of Commodore Goodenough.—Lent by Admiral Sir W. Goodenough, G.C.B., M.V.O.

Attendance

The amount taken for admission during the past quarter was :—

£67 0s. 6d. in February.
£54 13s. 6d. in March.
£195 3s. 0d. in April.

By courtesy of Lt.-Colonel Harold Wyllie, O.B.E. *From the original by W. L. Wyllie, R.A.*

TWENTY YEARS AGO

THE SECOND DIVISION OF THE BATTLE FLEET IN ACTION AT JUTLAND—MAY 31st, 1916

Reproduced from *More Sea Fights of the Great War*.—Messrs. Cassell & Co., Ltd.

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GOLD MEDAL ESSAY (AIR) 1935

By WING COMMANDER THE HON. R. A. COCHRANE, A.F.C., R.A.F.

SUBJECT

"THE EFFECT OF THE DEVELOPMENT OF AIR POWER ON BRITISH INTERESTS IN THE MEDITERRANEAN"

FROM the earliest days, the strongest Power at sea has occupied a special position in Mediterranean affairs; and in displacing Holland as the leading maritime nation, it was natural for England to be drawn into the Mediterranean, thus beginning a supremacy which, apart from temporary setbacks, has lasted until to-day. But a new development has now to be faced, and it is necessary to decide whether the growth of air power is likely to lead to a modification of the British position, or whether, like other dangers in the past, it will prove only a temporary embarrassment. It may help towards a decision if we first obtain a clear idea of the nature of British interests and the circumstances in which sea power has supported them in the past. The historical approach to a modern problem is not without pitfalls when it has to be compressed into a few paragraphs, but the advantage of the background which it provides is sufficient excuse for its inclusion, especially at a time such as this when a particular Mediterranean problem is occupying so much attention.

Before the time of Cromwell's government, the English Navy was seen in the Mediterranean only rarely and exceptionally, and merchant vessels were expected to look after themselves; but, after the Dutch wars, English trade with the countries bordering the Mediterranean grew in volume and importance to such a degree that the possibility

of a French king succeeding to the Spanish dominion and thus dominating the Mediterranean was regarded as a sufficient threat to English interests to justify the War of the Spanish Succession. By the successful outcome of that war, and by the capture of Gibraltar and Minorca, England was at last free to operate in the Mediterranean, and thus in the words of a contemporary historian [1] " we not only secured our trade with the Levant and strengthened our interests with all the Italian princes, but struck the States of Barbary with terror and awed the Sultan from listening to any proposals from France." Here is a clear statement of the scope of England's interests in the Mediterranean in the middle of the XVIIIth century. It is interesting to note the importance given to Turkey even at this early date, whilst the reference to the Italian princes indicates that, in her dealings with the Continent, England had already come to realize the value of this avenue of approach —a value which was again proved in 1741 when she was able to support Maria Theresa in her war with Frederick.

England's place in the Mediterranean now appeared unassailable, but preoccupations elsewhere and a commander unequal to the task led to the loss of Minorca and a considerable strengthening of the French position. A French victory in the Mediterranean could not, however, compensate for losses elsewhere, and Minorca was returned seven years later as part of the general peace settlement. But its importance as a naval base was on the wane as attention shifted more and more to the Eastern basin of the Mediterranean, and its loss during the period of naval adversity towards the close of the XVIIIth century was more than compensated for by the acquisition of Malta during the Napoleonic Wars. Once again the main struggle took place outside the Mediterranean, but it was the strength of the English fleet which brought Napoleon's Eastern adventure to a close, and although, in 1801, France controlled all Italy, Napoleon could not prevent England from sending assistance to those Mediterranean States which were struggling against him, or from introducing goods into Southern Europe, thus knocking yet another hole in his Continental system. The close of the Napoleonic wars left England in possession of Malta and Gibraltar ; whilst Castlereagh's " just equilibrium," so often referred to in the writings and papers of this period, which regarded the Italian peninsula as the natural sphere of Austrian influence and a counter to France, added greatly to the strength of the English position.

Mediterranean politics are, however, seldom static, and a new problem was shortly to appear which was destined to force a

[1] Mahan, " The Influence of Sea Power upon History," p. 229, quoting from Campbell's " Lives of the Admirals."

regrouping of the Powers. The Czar of Russia had conceived the idea of a protectorate over Turkey which, if permitted, would have placed him in a position to control not only the passage leading to the Mediterranean but also the land route to the Persian Gulf. Such a double threat to British communications, which with the acquisition of an Eastern Empire had enormously increased in importance, could not be ignored; and France, who had her own reasons for disliking Russia, aligned herself with Great Britain in support of Turkey. From the beginning the British fleet played a leading part, and in 1835 Lord Palmerston is found writing that the British Ambassador at Constantinople "always has had a longing to have the Squadron opposite Seraglio point, and I believe, after all, there is no place in Europe where it could be more useful." [1] Twenty years later another ambassador is proclaiming that the fate of the British Empire itself is dependant upon the prevention of a Muscovite hegemony over Turkey, and urging that if events demanded it he might be empowered to call up the British fleet to Constantinople in contravention of the Treaty of 1841. The Crimean War and the internal difficulties which followed put a final check to Russian ambitions, but the experience of those years had done much to clarify British policy and to demonstrate the importance of the interests which would be threatened should a great Power obtain possession of Constantinople.

The next problem facing Great Britain, namely the union of the Italian States and the rise of a Power well placed geographically to control the trade route where it passes from the Eastern to the Western basins of the Mediterranean, caused little stir at the time. For one thing, the full implications of that union are only now becoming apparent, whilst the adjustments in British policy had scarcely been completed before the situation was overshadowed by the German Emperor's dream of a Mitteleuropa stretching from Hamburg to Constantinople and ultimately to the Persian Gulf, thus turning the flank of British sea power. In the war that was to come the main theatre was in the West, but the chief British interests, after the security of the home terminal areas, were, as ever, in the Mediterranean. Whether or not the British Empire made adequate use of its position in this area is a matter of controversy into which it is unnecessary to enter, but it may be noted that in the attempts to assist Russia by way of the Dardanelles, and to aid the other allies in South-Eastern Europe, Great Britain was following the well-established strategy of previous wars. If the fortifications of the Dardanelles prevented the fulfilment of the

[1] Lord Palmerston to Sir William Temple, March 10th, 1835.

first part, it is at least satisfactory that the common interests of the Western Powers led to the demilitarization clauses of the Peace with Turkey. To what extent these clauses fulfil the intention of their authors is a question which will be discussed later, and it is only here intended to point out that, whether Russia aims at becoming a Mediterranean Power as in the XIXth century, or Germany stretches out towards the East as in the XXth, Constantinople remains the key to the situation and the nature of its ownership a primary British interest.

Space must limit the scope of this review, but even such a cursory examination cannot fail to indicate the two main objects animating British policy in the Mediterranean during the past two hundred years: firstly, to ensure that no country shall be able to threaten the security of British communications to India and the Far East; secondly, to preserve access to the countries bordering the Mediterranean. Both these objects have been attained whenever England has been sufficiently powerful at sea to control the Mediterranean route, thus permitting the free movement of trade and military expeditions.

What then is the position to-day? Briefly it may be said that, although the fleets of France and Italy contain powerful submarine forces, the British fleet is greatly superior in capital ships and other surface craft; that it is provided with well found bases at Malta and Gibraltar; and that, although post-war groupings are still fluid and the future of the League of Nations uncertain, there is at any rate no sign of any anti-British combination amongst the Mediterranean Powers; finally, the Dardanelles have been demilitarized and Turkey deprived of any useful navy, so that the way to Constantinople appears once again open to the British fleet should circumstances call for intervention. The position, therefore, is one which might be considered entirely satisfactory were it not for the shadow cast by the post-war growth of air power—a new factor which calls for careful analysis.

Broadly speaking, air power might be used in the Mediterranean—in conjunction naturally with sea and land forces—against the British fleet; against the fleet bases; or against the military expeditions or merchant shipping whose protection, whether directly or indirectly, is the fleet's main task. If the British fleet could be threatened with such damage that it would be forced to withdraw from the Mediterranean, or if it could be denied the use of its bases, control or partial control of a section of the Mediterranean route might pass to the hostile Power. Alternatively, a direct attack on merchant shipping or transports might lead to an interruption of communications without the necessity for operations against heavily defended ships or bases. The probable consequences of such attacks can only be judged after an

examination of all the factors, including the counter-measures which can be organized both within and without the Mediterranean theatre. It may be convenient to begin with a review of the capabilities of the aeroplane in the particular conditions likely to be encountered.[1]

Capabilities of the Aeroplane

In examining the operational value of the aeroplane it is important at the outset to be clear on certain general aspects of the problem which affect the conclusions, namely :—

(1) That the aeroplane was insufficiently developed in the late war to play any but a minor part in operations at sea.

(2) That there is still too little practical data to justify a conclusive opinion as to its value in such operations.

(3) That the development both of aircraft and of anti-aircraft defence measures, was never more rapid than at the present time.

Any attempt to evaluate the air threat in precise terms is therefore surrounded with difficulties ; and it must be admitted that the conclusions which emerge from this review derive much from the realm of opinion. The recent notable advance in the science of aerodynamics has led to a great increase in the efficiency of all aeroplanes designed during or subsequent to 1933. But owing to the expense of simultaneous replacement, many of the aircraft in European air forces are still of pre-1933 types, although new building programmes are everywhere being pushed forward. This rapid progress creates a difficulty, for it is necessary to decide whether the argument should be based on the capabilities of the aircraft now in service in the air forces of the Mediterranean Powers, or whether some allowance should be made for future developments. If, however, the future is to be called upon to aid the aeroplane, it cannot reasonably be withheld from the anti-aircraft defences ; although here progress is less easy to forecast. Much may happen in a few years and the calculations will rest on firmer foundations if too much speculation is excluded from both sides. It is, therefore, proposed to consider only those types of aircraft which are now in production and use, although not necessarily all in the same country, and whose performance has in every case been markedly surpassed by aircraft emerging from the experimental stage.

The table which follows gives the performance figures of the types

[1] This paper must necessarily discuss the strategical situation in relation to certain foreign countries, but the problem has been dealt with as far as possible from an entirely objective point of view.

of aircraft selected. They are, in general, based on Jane's *All the World's Aircraft* and represent types which have been in service for a year or more.

Type.	*Effective Radius of Action, miles.*	*Max. Speed, m.p.h.*	*Bomb Load, lbs.*	*Remarks.*
Light Bomber	250	235	550	
Medium „	350	210	1000–1500, according to range.	With reduced bomb load, range in still air, 1500 miles.
Heavy „	600	180	2200–4400, according to range.	„ „
Reconnaissance Flying Boat	500	140	500	
Reconnaissance Land Plane	300	185	250	
Fighter	150	260	80	

Note 1.—In order to allow for the effect of wind, enemy action, and formation flying, the effective radius of action has been taken as 80 per cent. of the maximum radius at full speed. The radius at economical cruising speed would be considerably greater.

Note 2.—No figures have been included for Fleet Air Arm types, but owing to limitation of size, and to other special characteristics demanded of aircraft which must operate from carriers, the speed, range, and weight-carrying capacity will be somewhat inferior to that of comparable land-based aircraft.

It will be convenient in the first instance to consider the figures for radius of action and speed, and to view them in relation to the geography of the Mediterranean. The factor of distance, always important in air operations, is well illustrated in the Mediterranean, whose 5 to 1 ratio of length to breadth greatly favours those nations which are established along its coasts. Thus no point in the Western Mediterranean is more than 250 miles, i.e., just over one hour's flight for a medium bomber, from French territory; whilst a similar distance from Italian territory covers most of the central and eastern area. Moreover, Malta and Gibraltar—carefully chosen so as to place the fleet in a position to cover the narrowest waters, are now seen to lie within the zone of the potentially heaviest air attack. Gibraltar is only some 35 minutes flight

LONDON
AMSTERDAM
BERLIN
WARSAW
250 Miles from FRENCH Territory
20 30 30 ITALIAN 20
Boulogne
PARIS
Saar Valley
VIENNA
Budapest
SWITZ-ERLAND
FRANCE
Trieste
Fiume
Milan
Genoa
Pola
Zara
Belgrade
BLACK SEA
Ferrol
Marseilles
PYRENEES
Toulon
CORSICA
ITALY
ALBANIA
Sofia
CONSTANTINOPLE
Adrianople
Salonica
SPAIN
SARDINIA
Taranto
Cagliari
Angora
Gibraltar
Cartagena
Bona
Bizerta
SICILY
Smyrna
Tangier
Spanish Zone
Ceuta
Algiers
Oran
MALTA
RHODES
CRETE
Alexandretta
Aleppo
CYPRUS
SYRIA
Rabat
Fez
Casa Blanca
MOROCCO
ALGERIA
TUNIS
Tripoli
Beirut
Haifa
Jaffa
Damascus
ALEXANDRIA
Port Said
Jerusalem
Mogador
CAIRO
Suez
TRIPOLI
EGYPT

from Morocco, and Malta an hour from Tunisia and only 20 minutes from Sicily. Furthermore, the Suez Canal is within range both from Tripoli and Syria, although here Great Britain is more favourably placed.

The configuration of the Mediterranean also has an important bearing on reinforcement. All types of aircraft can fly from one French territory to another in the Western Mediterranean, and the majority of types can reach Syria. Similarly, Italian bombing and reconnaissance aircraft can reach Tripoli and any of the Italian islands, including the Dodecanese. It will thus be seen that aircraft belonging to either of these Powers can be readily concentrated within the Mediterranean at a number of points flanking the main trade route.

Compared to this, the position of Great Britain is distinctly unfavourable, for Malta is separated by nearly 1,000 miles from both Gibraltar and Egypt, and the former by a similar distance from the United Kingdom. Any reinforcement by air must therefore be limited to the heavier types of bomber, and even this is impossible unless landing facilities can be provided at Gibraltar—a matter which will be referred to again in a later section.

The figures for bomb loads, in the third column of the table, are self-explanatory; but linked up with carrying capacity is the all-important question of accuracy, for unless a reasonable percentage of hits can be obtained, no amount of flying can lead to effective results, and aircraft must be relegated to the minor task of reconnaissance. In the late war, bomb sights were primitive and crews indifferently trained in their use; as a result bombs frequently missed the targets by a quarter or even half a mile, and the results depended far more on moral effect than on any material damage. Since the War, the requirements of high altitude bombing have been scientifically studied and the worst errors gradually eliminated. The ballistics of the bomb, for a long time entirely neglected, are now known; properly calibrated instruments for obtaining height and speed form part of the normal equipment of every aircraft, whether civil or military; and there remains only one element which affects the accuracy of bombing and which is not directly known to the pilot. The layer of air in which the aeroplane is flying is itself in movement, and to the extent that this motion is wrongly estimated, the bomb will be carried wide of the point aimed at. The solution of the problem is not, however, inherently difficult, although the method and the apparatus have required time for their development. The cumulative effect of these improvements, and the time which is now devoted in all air forces to practical training in bombing, is reflected in greatly improved accuracy. Reference must also be made to a form of attack which has received considerable

advertisement in recent years, in which the pilot seeks to eliminate errors due to instruments and the effect of the wind, by diving on the target at a steep angle and releasing the bombs from a low height. Great accuracy can be obtained by this method, but the low velocity with which the bomb strikes reduces its usefulness against armoured decks. Finally there is the torpedo: here the problem is not so much to hit a ship, which from close range is comparatively easy, as to reach this position in the face of anti-aircraft fire. Circumstances will vary greatly according to the type of ship which is being attacked, the number of ships in company, the degree of surprise achieved, and many other factors which can never be fully known until the occasion.

It will be apparent that much of the subsequent argument must necessarily rest on the views held as to the effectiveness of the various forms of air attack dealt with above. Whilst recognizing that the matter is one which can only be finally decided after further experience, it is believed that the following order of accuracy is likely to be achieved by those aircraft which succeed in reaching a favourable position from which to attack.[1]

High Altitude Bombing.—In clear weather and from heights up to 20,000 feet 50 per cent. of the bombs dropped would fall within a dockyard area such as that at Malta or Gibraltar. At night such bombing could be deliberate and conducted from beyond the effective range of searchlights. Against a fleet at sea 5 per cent. to 10 per cent. of hits could be obtained by day.

Diving Bombing.—Against selected targets on land such as dockyard workshops, power stations, or ships in dock, at least 30 per cent. of hits would be obtained, and against ships at sea a similar or slightly lower percentage. The deck armour of modern capital ships is sufficient to protect the vital parts from this form of attack, but aircraft carriers, cruisers, and merchant ships have no such protection and may suffer severe damage if hit.[2]

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[1] In assessing the effect of A/A fire on the accuracy of a bombing attack, weight has been given to three factors: firstly, the experience of the late war—in some of the battles on the Western front aircraft flew low through intense concentrations of fire, and although casualties were high the accuracy of the attacks did not suffer; secondly, the introduction of parachutes has removed the fear of being shot down out of control when at high altitude; and lastly, owing to engine noise and restricted view, the occupants of an aircraft obtain a less alarming impression of the volume of fire directed against them than does an observer on the ground.

[2] In considering the damage likely to be caused it must be remembered that the explosive content of a bomb is from 4 to 8 times that of a shell of similar total weight. Thus a 250-lb. bomb designed to penetrate light armour might be expected to produce an explosion comparable to that of a 15-inch armour-piercing shell weighing nearly 1 ton.

Torpedo Attack.—A high percentage of hits would be received against merchant ships, but against the fleet the success of an attack would almost entirely depend upon the degree of surprise attained.

If these views are accepted [1] it is clear that measures must be taken to prevent any large number of aircraft from reaching a position from which to attack, and it is therefore necessary to consider what methods of defence are available.

Air Defence Measures

It has been shown in the preceding sections that British forces in the Mediterranean and the bases from which they normally operate lie within range of air attack from the neighbouring shores and islands. In the present section it is proposed to consider only the direct methods of defence which can be employed within the Mediterranean theatre, and leave for a later section the wider question of the indirect measures, which in the long run may prove the more effective.

Modern systems of air defence, such as those being built up in Europe to-day, rely, firstly, on offensive operations designed to tie down the enemy air force to the defensive and thus reduce the numbers which he can spare for his own offensive; and, secondly, on the active defence of fighter aircraft working in conjunction with anti-aircraft guns and searchlights. Such a system affords the fullest scope for all the elements of the defence, but it requires certain special conditions. Firstly, the bomber offensive must be powerful and sustained; but neither Malta nor Gibraltar can provide the space necessary to operate a large force, whilst the Fleet Air Arm, for all its mobility, could hardly maintain attacks with sufficient intensity without grave risk to the carriers. Secondly, fighter aircraft require warning of the approach of hostile formations or, if this is impracticable, sufficient aircraft must be available to permit of patrols being maintained at those heights and in those directions from which the attacking aircraft are likely to arrive. No elaborate argument is needed to show that neither of these conditions can be fulfilled in the defence of the fleet or of an isolated fleet base against a heavy scale of attack. There remains the anti-aircraft gun, and although large numbers can be concentrated, the system, as will be shown later, will lack depth; nevertheless it must be concluded that the air defence of small areas lying within close

[1] A marked difference of opinion as to the probable accuracy and effect of aircraft attacks on ships will be noticed in the article dealing specially with this subject dublished on p. 330 of this JOURNAL.—EDITOR.

range of a powerful air force must depend primarily on these weapons. We must, therefore, consider the probable effectiveness of anti-aircraft fire under modern conditions.

The late war taught that, although high-flying aircraft were frequently shot down, the deterrent effect of guns, in the state then reached, was insufficient to stop attacks, nor did the losses render the replacement of aircraft a serious problem. Since the War there have been two major developments which deserve attention. The gun has been greatly aided by a new system of determining the height, speed, and direction of movement of an aeroplane and of predicting its future position on the basis of these data. That is to say, within the margin of error of instruments and fuses, the anti-aircraft gunner can now project a shell to the point which the aircraft should reach some seconds later, on the assumption that the pilot refrains from altering his course, height, or speed after the observations have been made. These instruments have revolutionized the technique of anti-aircraft gunnery, but it is clear that there still remains a gap in the evidence required for a complete solution of the problem, namely, the pilot's intentions during the time which must elapse between the collection of the data and the burst of the shell in the predicted position. This time can hardly be less than 15–20 seconds, depending on the height and range, and the time required to set the fuze ; or sufficient for a 200 m.p.h. aeroplane to travel the best part of a mile. This high speed, and the manœuvrability of modern aircraft, is the chief counter-development, for not only is the pilot better able to complicate the task of " prediction," but with twice the speed available in the last war the time spent within range of a battery can be reduced by half. No pilot under anti-aircraft fire can be expected to continue on an even course, and at a constant height and speed, except for a few seconds, about equal to the time of prediction, before releasing his bombs. The anti-aircraft gunner's task is, therefore, of the utmost complexity although, owing to the absence of any nearby objects, it is often difficult for a spectator to obtain a true impression of the speed at which an aeroplane is travelling or to visualize the high degree of skill and accuracy necessary to obtain a hit.

The presence of a number of aircraft in a formation adds considerably to the size of the target but, except in the close presence of fighters, the aircraft can fly in open formation and any attempt at " browning " is likely to prove unreliable in view of the very small size of the danger zone of a shell burst. The guns in general use during the War, many of which are still standard equipment, fired a shell with a danger zone of less than 50 feet, and although the shells of modern weapons, and especially those mounted in ships, may give double that radius, aero-

planes are now more robust and it will probably be found, in practice, that an almost direct hit will be necessary to ensure destruction.

So much for the development of high-altitude fire. Against low-flying aircraft, however, it must be recorded that in addition to machine-gun fire, which always proved dangerous, there are now available a variety of short-range weapons of which the naval multiple pom-pom is probably the most formidable, especially against torpedo-carrying aircraft which, at the moment of release, are restricted to movement in two dimensions. Low-flying aircraft must, therefore, rely more than ever on speed, manœuvrability, and surprise.

Examination so far, then, leads to the conclusion that, in comparing the development of aircraft and guns since the War, the latter, although benefiting from greatly improved methods, are faced with more difficult conditions; not least that the target will only be within range for half the time. On balance, therefore, it is doubtful whether there has been any great change in the destructive power of a given number of guns, although defence against low-flying attacks has been strengthened.

The problem of the defence of any area by means of anti-aircraft guns cannot be met by a general answer, since it must depend on the size of the area requiring protection, on the scale of each attack, and the ability of the enemy to replace his casualties. The latter, especially, is important, for, if the defences are to get the upper hand, they must prove their ability to destroy more aircraft than the enemy can make available for the attack. It will therefore be convenient to leave further consideration of the effectiveness of anti-aircraft guns until it has been possible to examine the order of magnitude of the forces against which protection must be provided.

Air Power in the Mediterranean

It is customary for all Powers to render a return of their armaments to the League of Nations; but apart from differences in the bases of calculation—in itself no small matter, the strength of the forces by which Great Britain might find herself opposed must depend on the groupings of the Powers and the nature and extent of their commitments elsewhere. At one extreme it would be possible to imagine Great Britain acting with other members of the League to restrain an aggressor; at the other, a war in which Great Britain was engaged single-handed against a combination of Powers. As it would be impossible in the space available to examine all these eventualities, it is proposed in the first instance to consider only the magnitude of the threat to British interests should Great Britain be faced with hostilities with one of the principal Mediterranean air Powers, namely, France, Italy, or Turkey. But even

so, the way is not entirely clear for, in the case of France, the Channel, and not the Mediterranean, would be the main theatre ; whilst neither Italy nor Turkey could withdraw all their forces from their frontiers and coasts for offensive action. It is therefore proposed to assume that France would only operate with the aircraft normally located round the shores of the Mediterranean, and that both Italy and Turkey would retain at least a quarter of their forces for security purposes elsewhere.

The following Table of aircraft strengths is taken from the latest returns published in the " Armaments Year Book " for 1934 :—

Country.	*Metropolitan Strength.*	*N. Africa.*	*Remarks.*
France . . .	1210 (150 on Mediterranean coast)	300	Includes only aircraft in tactical units and omits 62 carried on board ship.
Italy . . .	1453	54	Includes service aircraft in schools.
Turkey . . .	370	—	Includes all training aircraft and aircraft undergoing overhaul.

It is clear that these figures require adjustment to a common basis, whilst a further and important assumption must be made in regard to the types of aircraft composing the force, and especially the number of bombers. Without the detailed knowledge which cannot be obtained from published sources of information, it is only possible to make certain assumptions and to state these clearly so that the basis of the calculation may be understood.

The assumptions which it is proposed to make are :—

(1) That the comparable Metropolitan first line strengths of France, Italy, and Turkey are respectively, 1,210, 1,000 [1] and 200, and that of these one-third are army and navy co-operation types capable of bombing but normally operating with the land or naval forces, one-third are fighters, and the remainder bombers.

(2) That all aircraft in North Africa are of the general purpose or light bomber type.

(3) That in the Metropolitan force 50 per cent. of the bombers are light types and 50 per cent. medium or heavy.

From these assumptions the bomb-lifting capacity of the aircraft

[1] Exclusive of the aircraft which are temporarily detached for service in East Africa. If Press reports are accurate this figure is probably now an under-estimate.

available for operations in the Mediterranean can be estimated as follows :—

France . . 100 tons, carried by 350 aircraft—mainly light types.
Italy . up to 150 „ „ „ 300 „ —half medium and heavy types.
Turkey . up to 30 „ „ „ 100 „ —all light types.

It should be noted that these figures represent the maximum weight which can be carried at any one time by the regular units, and include no allowance for bombs carried by reconnaissance aircraft or by converted civil aircraft ; nor do they allow for the increased carrying capacity available in a short range attack. The real criterion is not, however, the theoretical weight which can be lifted but the ability to hit the target and to continue to do so as required by the operations.

Reference has been made to the importance of war production, but no less important is the accumulation of sufficient reserves of aircraft and pilots to replace casualties until the output of factories and training establishments overtakes wastage. This is unlikely to be achieved in less than six months, and there are, therefore, two distinct periods : the first, when the force will be living very largely on its peace-time reserves, and the casualty rate must be carefully watched ; and the subsequent period, when output has started from the enlarged war industry.[1] It may be noted that by 1918 all the leading Powers were turning out approximately 100 aircraft a day, and with the greater experience of mass production methods now available such an output should be reached within the first twelve months, provided always that the country is able to obtain supplies of the necessary materials.

The numbers of aircraft held in reserve by the leading Powers have never been published, but 100 per cent. of the first-line strength is a reasonable estimate which may be greatly exceeded if the outbreak of hostilities has been preceded by a period of strained relations or by protracted negotiations at Geneva. Given time for concentration, an initial scale of attack up to 100 tons, and in certain circumstances considerably exceeding this amount, could therefore be launched against targets within 250 miles of French or Italian territory. Within a similar range of Turkish territory the scale would not exceed 30 tons. These conclusions are to some extent dependent on the assumption that foreign nations have a proper conception of the possibilities of air power, and that organization and training will permit the concentration of the bombing force against any suitable target within range. The continuity of attacks would depend on the casualties sustained, and at any rate

[1] Turkey, with no aircraft industry, would have to rely on supplies from other countries, of which Soviet Russia would be the most conveniently placed.

during the early months of the war, lack of aircraft would ultimately force their discontinuance should they prove too costly.

The main objectives open to attack have already been noted as the fleet itself; the fleet bases at Malta and Gibraltar; and British commerce or British expeditions sailing within the Mediterranean. It will be convenient to examine each in turn and to consider, in the light of the preceding sections, the probable results of such attacks.

Defence of the Fleet and its Bases

A fleet combines the greatest aggregation of offensive and defensive power which science can devise, and vastly exceeds any similar concentration in land warfare. In the past, fleets have been assailed by new weapons, but a defence has always been forthcoming, although at the price of a continual increase in the size and cost of the capital ship and of its auxiliary vessels. It is, perhaps, fair to deduce that in the absence of any limitation in either of these respects, capital ships could be built to withstand several hits from aircraft missiles, and with an anti-aircraft armament so powerful that any attack, except in large numbers or in exceptionally favourable conditions, would be extremely hazardous. In the future, therefore, we may find that a British fleet will be capable of undertaking offensive operations in the Mediterranean in spite of enemy aircraft, although the protection of vessels on detached duty will remain a serious problem. But to return to the present: it is no secret that the British fleet is largely out of date, in that the majority of its units were designed and built before aircraft had acquired their present importance. At the same time, even to-day, the fleet mounts a powerful anti-aircraft armament and a hostile air force would have to face the loss of a considerable number of aircraft in any attempt to inflict extensive damage.

It appears, therefore, that although some attacks might, and probably would be developed against the fleet at sea, the air forces of the Mediterranean Powers are not sufficiently powerful, at any rate in the early stages of a war, to encompass its destruction or cause serious damage to a large number of its units. The fleet must, however, be immediately available to counter enemy moves, and this necessitates secure bases at suitable strategic points. As we are at present considering a conflict in which Great Britain is fighting without allies, such bases are only available at Malta, Gibraltar or in the Eastern Mediterranean; the last, however, is too far distant to provide adequate protection in the Central or Western areas. The main question to be decided, therefore, is the possibility of rendering Malta and Gibraltar

secure as bases for the fleet; the defence, as we have already seen, being forced to rely primarily on anti-aircraft guns.

There are certain difficulties inherent in the provision of adequate anti-aircraft gun defences for an area such as a dockyard which cannot be defended in depth against an attack from seaward. For example, a formation approaching at a high altitude is unlikely to be sighted in average visibility at a greater distance than seven miles; yet at 200 miles per hour it will be able to turn away having dropped its bombs, in less than two minutes. Not far short of one minute will be required by the batteries and ships in harbour to pick up the target, estimate its height, speed, and direction of movement, and to burst the first shells in the predicted position. The formation will therefore be under fire for perhaps one minute on the way in, and two minutes after turning away, when the leader will be free to manœuvre. This is a short time for effective fire. Moreover, the defence must be prepared to deal with high-altitude attack at 15,000 feet or upwards by day or at night; with a low approach from seaward under cover of the rising sun; or with a diving attack out of the thin cloud layer so often seen in the Mediterranean. These are the realities of air attack, and suggest a more difficult problem than any which peace practices can provide for the A/A gunner.

In considering whether the combined defences of the fleet and base could provide the necessary security the following additional points are important. Firstly, the fleet is unlikely to spend more of its time away from a defended harbour than is necessary for any operations in hand. A hostile air force, which in the case of Malta may be only 20 minutes' flight away, can therefore choose a moment to attack when conditions are favourable. Secondly, should such an attack be successful in forcing the fleet to leave, there would be no need to incur further losses by continuing attacks on a large scale against the base; since as long as the threat existed the fleet would scarcely risk a permanent return.

Taking into account the number of aircraft available, the importance of the target, the conclusions already reached as to the order of effectiveness of A/A fire, and the special difficulties confronting the defence just mentioned, it is evident that Malta and Gibraltar are liable to heavy attacks. Whether these would be sufficient to force the fleet to change its base is open to argument but, with the present narrow margin of British naval superiority in other parts of the world, a commander-in-chief could hardly continue to submit his fleet to the risks of damage inherent in such a heavy scale of attack. However small the chances may be considered, there is always the possibility that a lucky hit from

a heavy bomb will incapacitate an important unit of the fleet, whilst a few well-conducted diving attacks might cause serious damage to aircraft carriers and cruisers.

But whether or not it is believed that A/A guns will provide an effective defence under all conditions of weather and visibility, there is this important point for consideration. An air force operates in an element of its own, and need not necessarily come into contact with either the sea or the land forces. Thus in the late war the German army was powerless to prevent British air attacks on the Rhineland centres, nor did the British Navy stand in the way of similar attacks on London. In both these instances air forces were able to avoid an army and navy and to strike directly at their objectives. In the Mediterranean, the British fleet and its bases are not ends in themselves, but only means to an end—the control of sea communications. In the past, no serious interference with these communications was possible until the fleet guarding them had been defeated or neutralized, and this could only be achieved by a superior fleet. But there are no physical obstacles to prevent an air force from avoiding the fleet and its bases and aiming its attacks directly at the shipping of its enemy. The extent to which such a policy could be pursued in the Mediterranean and its chances of success will depend on a number of factors which justify separate consideration.

Defence of Expeditions and Shipping against Air Attack

The importance of the Mediterranean as an avenue of military approach to Europe was referred to in an earlier section, whilst the passage of military expeditions may also be necessary to safeguard British interests in the Eastern Mediterranean, or beyond. The point to be decided is whether such forces could be sent when Great Britain was at war with a Mediterranean Power possessing an air force.

Let us consider a force the size of a single division—the smallest to meet any likely requirements. It will need for its movement not less than 20–30 transports occupying an area several miles in each direction and advancing at a speed which, allowing for anti-submarine tactics, is unlikely to be greater than 10 knots. Such an assembly of ships could hardly escape detection from air and submarine patrols, either in the narrow waters East of Gibraltar, in the passage into the Eastern Mediterranean between Bizerta and Sicily, or in the approaches to the Dardanelles. Whichever of the three Powers under consideration were our enemy, the expedition, even in the most favourable circumstances, would be liable to attack during at least one period of daylight; and in the case of a hostile France, for twice to four times this period.

The transports in the convoy would present good targets for torpedo or low bombing aircraft, and a high percentage of hits must be expected. The late war showed the damage caused by a torpedo, and the effect of high explosive bombs would hardly be less disastrous in a crowded troop ship. The escort, no matter how powerful in capital ships and cruisers, could by no means cover all the angles of approach, and aircraft could therefore attack without serious opposition from anti-aircraft guns.

There remains the protection which might be afforded by the aircraft of the Fleet Air Arm; but the total strength, including cruisers and carriers in all parts of the world, does not exceed the equivalent of five squadrons of fighters, three of torpedo bombers, and seven of spotter-reconnaissance. In view of the short endurance of the fighters and the difficulties of operating from carriers, it would be impracticable to maintain a patrol of sufficient strength to ensure the destruction of enemy bombers before they could deliver their attacks. Similarly, although Fleet Air Arm bombers could attack those shore bases which were within range, the number of aerodromes and landing grounds along the North African coast and in Italian territory, and the vulnerability of the carriers, precludes the possibility of neutralizing the enemy air force by this means. It must, therefore, be concluded that no large expedition could sail through the Mediterranean without steps having first been taken to reduce the potential scale of air attack which might be brought to bear by a hostile France or Italy.

There remains to be considered the Dardanelles; but here distances are so short and the passage through a narrow channel so advantageous to the defenders that the Turkish air force, although less numerous, must also be regarded as a sufficient threat to an expedition, although in this instance the necessary counter-measures could be more readily organized.

We can now pass to a consideration of a direct attack on British trade. In the years 1927–29, 20 per cent. of the total British foreign trade passed through the Mediterranean, whilst some 3,000 British ships entered the Suez Canal annually. In normal circumstances, therefore, a British ship might be expected to pass any given point in the Mediterranean every 3 hours, or if the flow were dammed for a week 28 ships would have collected and would require convoy from either end. British shipping therefore represents a great prize which the air patrols of a hostile Power should have little difficulty in locating in normal Mediterranean weather. But although an enemy may have precise information as to the movements of shipping, considerations of law and custom may render it inexpedient for him to take action or may restrain him from adopting extreme measures. There is, for

instance, the use of neutral waters. Without entering into details, an examination of the map shows that, so long as Great Britain is faced with only one hostile Power, much of the passage of the Mediterranean can be undertaken in neutral waters, although there are gaps between the Balearic Islands, Sardinia, and Sicily each of 200 miles, or greater than the distance which the average merchant vessel could cover during the hours of darkness. In the Eastern basin the position is even more difficult, and the necessity for Malta as a port of refuge and the value of a neutral Greece are apparent.

It will be seen, therefore, that even in favourable conditions, shipping cannot effect the entire passage in neutral waters, and it is necessary to consider the methods by which it might be attacked when on the open sea. Any form of indiscriminate action in which aircraft would attempt to copy the tactics of the German submarines and sink supposedly British ships at sight can be ruled out, at any rate in the early stages of the war; such action on a great international highway could not fail to antagonize neutrals, since an employment of the recognized *ruse de guerre* of false colours would make it impossible from the air to distinguish British from neutral shipping.

International law recognizes, however, that a belligerent has the right to " visit and search " ships believed to be carrying contraband, although, owing to the difficulty of examining a modern cargo vessel at sea, it was customary in the late war to instruct ships to proceed to the nearest harbour where the search could be more conveniently undertaken. Thus the British cruisers and armed merchantmen on the patrol lines were mainly required to intercept ships and to ensure that the orders given were obeyed. Such tasks appear within the capabilities of aircraft although their right to order deviation and if necessary to take action to enforce such orders, is a matter of controversy which a committee of jurists meeting at the Hague in 1922–23 had to leave unsettled. The U.S.A., Japan, and the Netherlands were opposed to any powers being granted to aircraft, but France, Italy, and Great Britain (i.e., the Mediterranean Powers) were in favour of a reasonable interpretation of the right to order deviation. The legal position of an aircraft which took action to enforce its orders was not discussed, but, as Mr. Spaight remarks,[1] " Doctrine, regulation, and practice alike recognize that a merchant vessel which persists in an attempt to escape or resists visit and search is exposed to attack and to the consequences of attack." This doctrine finds ample support from jurists of all nations when applied to action taken by warships, and it seems improbable that

[1] J. M. Spaight, " Aircraft and Commerce in War," p. 48.

action by aircraft in similar circumstances could be universally regarded as a serious breach of international law.

Owing to the wide areas which aircraft can reconnoitre, it is clear that, if the right to order deviation is admitted, they possess a considerable power of interference with trade, even when the possibility of evasion by night or in bad weather is taken into account. Whether such a system could be rendered sufficiently effective to lead to the virtual closing of the Mediterranean to British trade is a matter of opinion, but its efficiency would unquestionably be increased if the aircraft were able to co-operate with fast surface craft ; and it may be worth turning for a moment to consider whether this would be practicable. Published figures show that French and Italian ships are designed for higher speeds than similar British ships, but if no other means were available for their protection it must be accepted that they would soon succumb to the action of the more powerful British forces. In order to operate safely, an enemy must either be assured of sufficient warning of the approach of any superior British force, or else the range of the shore defences must be extended to cover the area of operations. As regards the former, the approach to the Western basin of the Mediterranean entails the passage of relatively narrow waters which cannot all be completed in one night, but even so, in view of the possibility of concealment in bad weather, some more direct form of protection would appear necessary. Against raids by light forces it is suggested that this might be provided by aircraft working from bases which need not be more than one hour's flight from the furthest point in the area of operations. It is true that aircraft could not afford protection against the entire British fleet, but in these circumstances surprise is less likely and the forced withdrawal of the surface craft would only be temporary, since there could be no question of the British fleet remaining in permanent occupation of the disputed waters. The important point to be noted is that, even if the fleet is so based as to provide cover for its cruiser forces against surface attack, they will not necessarily be able to maintain operations in the protection of trade if these have to be undertaken within range of heavy air attack.

The areas in the Mediterranean which appear to favour the form of operation described above are West of Sardinia and in what may be termed the Bizerta triangle, that is in the area South of Sardinia and Sicily. The measure of success is likely to depend on the extent to which British forces can operate from Malta ; without this base a serious degree of interference must be expected.

So far British trade has been regarded as unregulated except for routeing and the use of neutral waters ; but the possibility of convoy

obviously merits consideration. Success would seem to depend on the convoy being able to complete its passage undetected through the narrow waters where air and submarine patrols may be expected. In view of the strength of the naval forces of the Mediterranean Powers, a considerable escort would be necessary to provide security against surface and submarine attack; but owing to the area covered by a convoy, the A/A guns of the escort could hardly prevent an air attack from being delivered, although the provision of special A/A gun ships might do much to improve the situation.

It must therefore be concluded that neither single ships nor convoys will be free from interference, and since British air power cannot establish itself in the Central or Western Mediterranean without the aid of allies, it will probably be found necessary to divert the bulk of Mediterranean traffic via the Cape. This will add some 30 per cent. to the tonnage requirements, but except in the event of a simultaneous emergency in the Far East should not increase the strain on shipping to a dangerous extent, although for certain trades it would be highly inconvenient.

Hitherto, only such measures of defence as are available to Great Britain inside the Mediterranean have been discussed; but before passing to a final conclusion it is necessary to consider the effect of such action as can be taken outside that area.

Indirect Defence Measures

All modern States are large importers of raw materials, and although war stocks of the more important items may be maintained as part of the national defence policy, such reserves could not last a lengthy campaign. Thus Italy, even in 1932 at the worst period of the slump, was still importing over seventeen and a half million tons, and was dependent on outside sources for virtually the whole of her requirements of coal, oil, copper, rubber, cotton, jute, oilseeds, and manganese, and for more than half her requirements in iron, steel, wool, and timber. These items were received from a large number of individual sources, but some 80 per cent. came by sea either *via* Gibraltar, the Suez Canal, or the Dardanelles. The extent to which supplies could be obtained across the land frontiers, should the sea route be closed, must depend on the attitude of the Powers of the North; but even if their co-operation was assured, the railways would be unable to deal with full supplies of the bulkier items, and the cost of transport would be a serious matter. At the same time developments in rail and road communications have undoubtedly reduced the effectiveness of a blockade. It is beyond the scope of this essay to discuss the measures of blockade or contraband

control which might be instituted, since these may have to be modified to meet the attitude of the principal neutral Powers; but it may be extremely difficult to prevent trade with adjacent neutral States, or to cut off supplies *via* the Dardanelles route. There is, nevertheless, every reason to believe that, in the long run, British control of the two main gateways into the Mediterranean and British financial and economic strength would prove as effective as in past wars.

With France the effect of external pressure is less easily predicted. Not only has she an extensive seaboard to the Atlantic, but also a land frontier with good rail communications. Furthermore, her proximity to England suggests that the main air effort would be conducted across the Channel, and that a decision gained in this area would automatically govern the situation in the Mediterranean. But it is difficult to visualize a single-handed conflict between the British Empire and France. There are no rivalries to justify it, and the Treaty of Locarno could hardly provide the cause. It is, moreover, profitless to speculate on vague improbabilities, and it will be sufficient to note the geographical facts of the situation.

The position of Turkey is rather different, since she can obtain supplies from Russia by a route which could only be severed with that country's co-operation. At the same time the Persian Gulf and Iraq provide a means of approach which, if used, might lead to forces being drawn off from the North. Although Turkish forces would not by themselves constitute a very powerful menace, in alliance with another great Power they could effectually close the passage of the Dardanelles and would be largely proof against pressure by indirect means.

It must be concluded, therefore, that indirect pressure, whilst contributing powerfully towards the final outcome of a Mediterranean struggle, cannot be immediately effective, and this fact must be taken into account when considering the preparations it may be prudent to make.

Summary

The nature of British interests and the measures which, during the past two hundred years, have been employed to safeguard them against French, Russian, and finally, German ambitions were outlined in the opening section of this essay. Looking to the future, it is impossible to forecast the quarter from which a further threat may come; but it is apparent that the growth of air power is more than a temporary embarrassment, and that strategically Great Britain is no longer so well placed as formerly to protect those interests. In considering the problem, lack of space has forced the omission of many factors which would rightly be given weight when considering any particular operation;

nevertheless, the evidence which has been accumulated during this review appears to justify the following broad conclusions :—

Firstly, that British interests and British influence in the Mediterranean are out of all proportion to the territory owned. For many generations naval forces based on Malta and Gibraltar have afforded adequate protection for the great volume of trade which passes through the Mediterranean and have guaranteed freedom of movement for military forces. But in the absence of some new method of air defence as yet unsuspected, it is apparent that the configuration of the Mediterranean, and especially the restricted passage which joins the Eastern and Western basins, greatly favours those Powers which are established in the surrounding lands.

Secondly, that although there are strong reasons for believing that the battle fleet can be reconstructed so as to retain reasonable freedom of action in the face of a hostile air force, it will by itself no longer provide cover for the cruisers which may be required to exercise control, or for military expeditions or merchant shipping on passage through the Mediterranean.

Thirdly, that the fleet bases are open to a heavy scale of air attack against which no satisfactory defence has yet been devised. Should the fleet be unable to use Malta, partial control of the central section of the Mediterranean is likely to pass to the enemy. This would be an extremely serious matter in the event of a simultaneous crisis in the East ; whilst even in a Mediterranean conflict the loss of docking facilities would handicap the operations of the fleet.

Security, such as was customary before the introduction of aircraft, can now only be obtained if the enemy's air force can be worn down or diverted to other theatres, and such operations cannot be undertaken unless adequate operational bases can be made available. In the long run, sea power may be decisive by cutting off supplies of raw material ; but it cannot immediately influence the output of the factories and training establishments which form the basis of air power. Unless, therefore, some remedial measures can be devised, a temporary loss of control of the Mediterranean route may have to be faced, although this does not necessarily imply that any other Power would gain sufficient control to permit the movement of its own naval or military forces.

Finally, it must be accepted that air power is still untried in operations of the nature contemplated in this review, and that its strength can be easily dissipated if its forces are unskilfully handled. At the same time the tremendous progress which is being made in all matters connected with the air, and the example given by Germany of the speed with which a powerful air force can be built up, cannot

be ignored when considering the future. It is essential to face up to the facts of a new development and, whilst appreciating that changes may be necessary, determine that the utmost use shall be made of the many advantages which this country still retains. The situation seems appropriately summed up by Bacon when he wrote: "In Council it is good to see dangers, and in execution not to see them except they be very great." [1]

Recommendations

Foreign policy has always played an important part in safeguarding British interests in the Mediterranean, and adherence to the League of Nations, in so far as this ensures that Great Britain can rely on the support, of other members of the League in a Mediterranean conflict, clearly meets the requirements of British strategy. But should circumstances arise in which the British Empire is unable to count on League support it will be essential to return to the well-tried policy of the "just equilibrium." Apart from political measures there are certain military requirements whose scope must be viewed in relation to the defence policy of the Mediterranean Powers, and the proportion of their national defence resources which they devote to the air arm.

The more important steps which might be taken are: firstly, the improvement of the air defences of the fleet and its bases, especially Malta; secondly, the provision of adequate protection for shipping passing through a zone of air attack;[2] thirdly, the organization of the Cape route for use should the Mediterranean have to be closed; and finally, measures for the security of Egypt and Palestine against attack across the land frontiers and by air. In the event of a conflict with Italy there might be great difficulty in moving reinforcements by sea *via* the Mediterranean or Red Sea routes, and this fact must be taken into account in fixing the strength of the military and air forces to be maintained in the Middle East.[3] As regards the latter, with the increasing range of the larger types of aircraft, flights from the United Kingdom *via* Gibraltar and Malta will soon become practicable. But this at once brings up the difficult question of Gibraltar, which has no landing

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[1] *Essays* of Francis Bacon, No. XII.

[2] This problem also has an application outside the Mediterranean, and is one of the most important facing the British Empire at the present moment. It calls for the fullest investigation.

[3] It is some fifty years since Mancini coined the phrase that Italy would "find the keys of the Mediterranean in the Red Sea." Developments of the last few months appear as a further step in the direction of this policy.

ground. A well-known military writer [1] has suggested that Gibraltar might be exchanged for Ceuta and, if strategy was the only consideration and neither sentiment nor finance counted, there would be many advantages in such a course. Although the landward defence would be more difficult, the fleet would have a better harbour in an equally sound strategic position; full air facilities would be available for defence, whilst the air forces in the United Kingdom would be linked up with those in the Mediterranean and the East. In present circumstances any such exchange is probably impracticable, and attention must therefore be directed to providing a landing ground at Gibraltar. Although expensive, there are no insuperable difficulties, and its construction would do much to strengthen our position in the Mediterranean should reinforcements be suddenly required. It would not, however, add materially to the air defence of Gibraltar.

The foregoing recommendations, whilst not ensuring the continued use of the Mediterranean route in all circumstances, should at least provide for the security of British possessions and place the fleet in a position to conduct offensive operations should they be necessary.

[1] D. H. Cole, " Imperial Military Geography."

CAN METHODS OF WARFARE BE RESTRICTED

By Major-General Sir Henry F. Thuillier, K.C.B., C.M.G.

On Wednesday, 5th February, 1936, at 3 p.m.

Admiral Sir William Goodenough, G.C.B., M.V.O.,
in the Chair.

LECTURE

THE subject of this lecture is whether the methods of warfare, that is to say, the weapons used in war, can be restricted by international agreement. I want to make it clear that I am not referring to the possibility of restricting or abolishing war itself. The restriction, and the ultimate abolition, of war between civilized nations is of course a most desirable aim, and I hope it will prove to be a practicable one. The weapons and modes of warfare of the present century are becoming more and more powerful and effective, and the effects of future wars upon all classes of the population seem likely to be more and more devastating than in the past. If, therefore, war cannot be abolished, or at least rigorously controlled, it is highly probable that our civilization may end by destroying itself altogether.

Neither am I going to discuss the practicability or otherwise of bringing about permanent peace by international disarmament or by reduction of armaments. It must be evident that all our efforts in this direction have, up to the present, shown very few signs of success, and that no nation, except apparently our own, can be persuaded to reduce its armaments below the point which in its own opinion is necessary for its safety, until it can be assured of security by some other means. It will, I think, be agreed that as long as uncivilized or semi-civilized races and nations constitute a danger to others so long will war in some form be possible. Further, so long as any nation feels dissatisfied and believes it can improve its position by force of arms, and has no other means of doing so, wars will be very probable. Yet there is a considerable body of opinion which, recognizing the possibility of war, wishes to restrict the methods by which it is waged.

During the Disarmament Conferences at Geneva a few years ago, which proved abortive, definite proposals were put forward for the abolition of certain weapons which were classed as being " offensive,"

i.e., only used in warfare of aggression. I find a difficulty, being a soldier, in knowing how to distinguish between weapons used in aggression and those used in defence, but the promoters of these proposals specified under the former head, bomb dropping from aeroplanes, artillery of calibres above a certain limit, and heavy tanks. At some naval disarmament conferences there have been proposals for the abolition of submarines, and also for the restriction of the tonnage of battleships to a certain agreed figure. There have also been conferences since the War at Washington and Geneva, followed by an international agreement, on the prohibition of the use of gas or chemical substances in war. The question which I am going to discuss is whether restrictions of this nature are desirable, and if so, whether they are practicable.

The objects with which proposals of this sort are put forward are either economic or humanitarian, mostly the latter. Let us consider first the economic aspect, which is by far the simpler of the two. The argument is that the expenditure in peace on preparations for war constitutes an enormous drain on the resources of the nations. It diverts to totally unproductive purposes funds derived from a taxation which cripples industry. A fraction of these funds, if used for social services, would greatly improve the condition of the people in many ways. All this may be admitted, and few will dispute that reductions in armaments and in war preparations in peace, if they could be effected without danger to our security, would be an unmixed benefit.

Of the proposals mentioned previously, the only one which appears to be based purely on economic considerations is that for the restriction of the tonnage of battleships. The modern battleship is enormously costly. Its tonnage is about 35,000, and its cost about seven millions sterling or more. Any agreement that would considerably reduce this cost would be of great value. Admiral Sir Herbert Richmond has for some years past publicly and consistently advocated an agreement on these lines. His argument is that battleships are only necessary for fighting other battleships and that it does not matter what their size is, provided those on each side are the same. It is his opinion that all the requirements of a modern battleship could be obtained in a vessel of 10,000 tons, or even less, provided that all nations agreed not to exceed this limit. Such an agreement would very appreciably reduce the burden of taxation in all the principal nations of the world. It should be effective also, since it would be impossible for any nation to build a battleship secretly. Its size and the number of hands employed in its design and construction would make it almost impossible to prevent the Secret Services of other Powers from discovering if it much exceeded the limits agreed on. Moreover, even in wartime, it takes several years

to build a battleship. The reason why nothing has come of this proposal is that, unfortunately, naval experts are not agreed on what the limits of tonnage should be. Admiral Richmond has for the last ten years or so been publicly advocating a 10,000 ton limit, but the Sea Lords of the Admiralty have disagreed with this view. There was a proposal some years ago that an agreement should be made with the United States to limit the size to 25,000 tons, but at that time the naval authorities on both sides opposed it on the grounds that this limit would be too low. The British Admiralty at that time held the view that the requirements of a battleship in protection against gunfire, against torpedoes, and against air bombs, and in the necessary gun and engine power, could not be secured in a vessel of that tonnage. Since then, however, our Admiralty has modified its views and has been prepared to accept 25,000 tons as the limit, but the Americans have continued to refuse to do so.[1]

All the other proposals for the restriction of weapons arise out of humanitarian, rather than economic considerations. Here the issue is by no means so simple, and we meet great differences of opinion. All will doubtless agree that, if it is possible by international agreement to reduce in a substantial degree the sufferings of combatants or non-combatants, such an agreement would be highly desirable. But two questions require to be asked :—

(i) Will the restrictions which it is proposed to enforce actually result in reducing the inhumanity of war ?
(ii) Would such an agreement be effective ?

I think examination will show that some of the principal proposals that have been made would not have these effects ; in fact, the proposals spring in some cases from quite other motives than humanitarianism, though a false sentiment has attached itself to them. Take the case of submarines : does anyone really think it more humane to be killed by a shell from a battleship than by a torpedo from a submarine ? Or that if your ship is sunk and yourself drowned you will suffer more if the cause is a torpedo from a submarine than if it is shell fire from a battleship ? Obviously not. The objection to submarines is that they can effect surprise and are difficult to guard against. This is very unpleasant for the bigger ship surprised. The submarine is the weapon of the weaker naval Power and tends to equalize the power of navies. Obviously the stronger Power with superiority in battleships would like

[1] The recent Naval Conference was unable to secure agreement to reduce battleship displacement below 35,000 tons ; but the maximum calibre of gun has been reduced from 16 in. to 14 in.—EDITOR.

to abolish them. But this has nothing to do with inhumanity. Is it really inhumane to surprise your foe with a weapon against which he has no means of defence? If so, it was highly inhumane of us to send two powerful battle-cruisers to the Falkland Islands so that when the German fleet arrived it was hopelessly outranged and helplessly sunk. All war is inhumane. If it is inhumane to use weapons against which the other side has no defence, then rifles and machine guns used against the dervishes at Omdurman were exceedingly inhumane, and tanks used against the Germans were inhumane. We are apt to look on such things as inhumane when others use them against us, but not so when we use them against others.

To come back to submarines: it is argued that submarine attack on *merchant* vessels is inhumane since it violates an old and excellent sea custom that non-combatents should be taken off in safety. Submarines cannot take off passengers and crew, and there were occasions in the late war when these were set adrift in open boats. There were also cases when they were not even given that option but were sunk without any attempt at rescue. This was certainly very inhumane. But is it more so than to bombard a town with heavy artillery, regardless of the civilians and the women and children in it?—a practice which has prevailed for centuries, and no one makes any protest against it. Is it more inhumane than blockading a besieged town and starving the civilian inhabitants, including women and children? Is it more inhumane than cutting off the food supply of the whole of Germany and Austria, knowing full well that those countries could not produce sufficient food and milk for their own population? Is it more inhumane than continuing that blockade for eighteen months after the armistice? All war is terribly inhumane. It is very splendid of our Navy to have kept up its chivalrous custom of ensuring the safety of civilians at sea right into the XXth century, but their less sensitive comrades on land have for long been in the habit of firing at railway trains or into towns without asking any questions about who are in them. We are more or less accustomed to these forms of inhumanity, but to send a few people adrift in open boats is a form which was new to us and so excited our horror and anger.

If it were possible to induce other nations to forego the use of submarines it would be a great advantage to us, since it would rid us of fear of a weapon which very greatly neutralizes the power and scope of action of our battle fleets, and one which in the late war very nearly brought about our total defeat. But we should distinguish between proposals based on the plea of humanity and those based on self-interest. Those who hope to induce other nations to agree to abolish submarines

seem to me to be tinged with optimism.[1] And if such an agreement were made could we rely on it being respected? Would a nation who is weaker in naval strength than its adversary refrain from using submarines if she thought their use would avert national defeat? Submarines are small and could be built secretly in peace and rapidly in war. I do not believe that any agreement of this nature would be really effective until the time has come when the nations of the world have effectively established a system of collective security, as many of them are trying to do at the present time, under which any nation who unscrupulously violates an agreement of this sort would be promptly subjected to effective sanctions of a truly deterrent character.

Apart from the question of whether a general abolition of submarines is practicable, it is quite possible that agreement could be arrived at between nations to prohibit submarine attack on merchant and passenger vessels, even if their use against war vessels cannot be abolished. The case is different from that of land warfare where artillery fire and aerial bombs cannot be made to discriminate between combatants and non-combatants; on the sea a submarine has little difficulty in distinguishing a merchant vessel from a war vessel. The claims of humanity should be sufficient to induce all nations to agree to insistence on this being done, and to visit any nation who violates such an agreement with appropriate penalties.[2]

Let us turn to the question which is being a good deal discussed just now—that of prohibiting the dropping of bombs from aircraft. The idea underlying this proposal is that bombardment from the air has been used, and is certain to be used in future wars to still greater effect, against the civilian inhabitants of towns remote from the theatre of war. At the first view it seems that humane considerations would favour the protection of non-combatants from injury and the restriction of war to soldiers and sailors. To do this consistently, of course, it would be necessary also to prohibit artillery bombardment of towns and villages containing civilians, and also blockade by sea which deprives civilian populations of food. But even if it were done as regards air bombardment only, would this, on reflection, really lead to a reduction of the inhumanity of war?

In the late war all the nations conscripted millions of young men

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[1] The recent Naval Conference was unable to agree to the British Government's proposal to abolish submarines or to limit them to 250 tons. There has been no advance from the present agreement which limits submarine displacement to 2,000 tons and gun calibre to 5.1 in.—EDITOR.

[2] Progress along these lines was made at the recent Naval Conference.—EDITOR.

from 18 to 20 years of age and sent them out to battles where they were mown down by machine-gun fire, thousands at a time, without hope of escape. Is this really more humane than to drop bombs on their fathers and grandfathers who were instrumental in bringing about the war by their greed for gain, their desire for increased trade, for more colonies, for profits from the manufacture of armaments? Or on the Foreign Offices who bungled the diplomacy, the War Offices who prepared the war and the Presses who instigated it by hysterical propaganda? Or on the Churches which failed to instil into their flocks the sense of brotherhood which their religion professes, or the Emperors whose insane pride maintained the armed hosts and inspired the desire for increased dominion? If the sovereigns and cabinets, the war lords and manufacturers, in Vienna, Berlin, and Petrograd, had known that the first effect of the war they were bringing about would be destruction coming out of the sky on their own palaces, offices, and homes, it is quite possible that we should not have had it.

The fact must be recognized that modern wars cannot be confined to soldiers and sailors operating in distant theatres of war. In these days of democracy wars are both brought about and waged by the people themselves. The civilian population takes just as important a part as the fighting forces by being enrolled for the manufacture of munitions, the provision of food, the operation of all forms of transport, and in many other ways. Is it reasonable to expect that persons engaged on these operations of war, the failure of any one of which may lead to national defeat, shall be immune from attack by the enemy? And since the people also definitely bring about wars would not the interests of humanity be better served if they knew in advance that the effects would not be confined to soldiers and sailors but would ruthlessly fall on themselves?

Whatever one may think of the desirability of carefully shielding the promoters of war from feeling its effects in their own persons, a more important question is whether such a prohibition would be effective. It is, of course, now impossible to stop the use of aircraft for civilian purposes, and this form of transport is taking an ever larger place in our civilization. The aircraft of peace could at any time be used in war for bomb dropping. Would any nation, whatever agreements she had made in peace, refrain from using such weapons when she found herself confronted by national defeat? I find it difficult to believe it. It seems to me that the only way of guarding against violations of a convention prohibiting bombardments from the air would be to link this convention (as in the cognate case of restriction of submarine warfare) with a general international covenant of collective security in

such a manner as to make certain that any such violation would promptly meet with effective and deterrent penalties. If this could be done, then I think that a general prohibition of attacks from the air, not only on civilians but in fighting areas also, since the former would not be effective without the latter, would be very desirable.

Other restrictions which have been proposed at disarmament conferences were those of artillery of above a certain calibre, and of heavy tanks. The former of these is a proposal with which one can feel a certain amount of sympathy since heavy artillery is certainly a very inhumane weapon, but the question is how such a prohibition could be made effective. If guns and howitzers above a certain calibre were prohibited by agreement, can one believe that the next time a state of trench warfare and stalemate comes about one of the combatants would not take up this means of breaking it? Heavy guns can be manufactured even in peace in complete secrecy. At the opening of the War in 1914, the Germans brought about the destruction of the fortresses of Liège, Namur, Maubeuge, etc., by means of a number of huge howitzers, of 11-in. and 17-in. calibre, the existence of which was entirely unsuspected. During the course of the War we ourselves produced many thousands of heavy howitzers, 8-in. and upwards, from factories which did not exist before the War. The Germans also secretly manufactured and used in March, 1918, two enormous guns which bombarded Paris at a range of nearly 80 miles. What is to prevent such surprises being effected again? Would any peace agreement really give any security against it? Even the existence of an effective collective security covenant would not really do so. All prohibitions of war practices should be clean cut and clear so that little difficulty will arise in getting evidence of their violation if such takes place. In this case with an arbitrary limit of calibre there would inevitably be, first rumours, then formal complaints, quite possibly in good faith, of the limit having been surpassed. Considerable difficulty would be found in verifying them. The state of popular excitement which war causes would lead to demands for reprisals and possibly to some breach of another war convention as a retaliation. All this is highly undesirable. Either all artillery should be prohibited—this would be a real step towards humanity in war—or none.

As for the proposal to forbid the use of heavy tanks, words almost fail me to describe what I think of it. Its promoters apparently wish to see perpetuated the system under which unprotected infantrymen are sent forth to try and tear a way through barbed wire obstacles with their hands, and to be mowed down in swathes while doing so. I cannot believe there are any who really wish this, if there are I can only hope

that they and their sons will be among the first of those to be subjected to this dreadful fate, if ever we have battles of that type again, which God forbid ! If it is really desired to take inhumanity out of war why not try and bring about an agreement never to use in battle infantrymen unprotected by bulletproof armour ? There would be very little temptation to break this agreement. I suspect, however, that the idea underlying the proposal to forbid heavy tanks is that a nation waging a defensive war will never want to attack its enemy. But if their territory is invaded, as France has been twice in living memory, are they not to be allowed to attack the invader and turn him out if they can ?

Now I come to another weapon concerning which public opinion seems to be much in need of enlightenment, namely the use of gas and chemical substances in war. An agreement was made in Washington in 1921 between Great Britain, the U.S.A., France, Italy, and Japan, by which the contracting parties agreed :—

(i) If involved in hostilities against each other, not to use gas or chemical substances :
(ii) To discourage their use in any war in which they are neutral :
(iii) If engaged in war with any Power not signatory to the agreement, to undertake to endeavour, through the good offices of neutrals, to enter into an agreement between all the belligerents to abstain from the use of any form of gas, but that if such an agreement cannot be brought about, to be at liberty to use it or not at discretion.

This was followed by a protocol drawn up at Geneva in 1925 under which about thirty-eight nations in all have ratified their adhesion to the above agreement.

Personally I think this agreement deplorable—actuated by false and foolish sentimentalism which ignores facts and entirely misses the real claims of humanity. Why is it considered more inhumane to use gas than to use high explosive shell or machine guns ? The actual fact is that gas is by much the most humane weapon of all those used in war. All war is inhumane, but if we accept war as unavoidable, the most humane weapon is that which leads to a decision with the smallest amount of human suffering and death. Our streets and hospitals still contain many men permanently maimed, limbless, paralysed, shell-shocked, insane, blinded. Those injuries were not caused by gas, but by shell and rifle fire. The general impression that gas is an inhumane weapon arose from the surprise and horror felt at its first use by the Germans against unprotected troops, and at what was held to be a faithless breach of the Hague Convention. In consequence of the want of preparation for such a weapon the number of casualties, the sufferings

of the men gassed, and the proportion of deaths, were all exceedingly great. The death rate in the first gas attack in 1915 was about 35 per cent. of all the casualties, including those from shell and rifle fire as well as gas. Later, as the means of protection became more efficient, the number of casualties greatly declined, and the proportion of deaths to casualties from gas alone fell to 24 per cent., then to 18 per cent., then to 6 per cent. When mustard gas became the principal chemical weapon of the Germans the number of casualties increased, but the death proportion fell to, and remained at, 2½ per cent. of the gas casualties. In the American Army, out of a total of 275,000 casualties for the whole war, 75,000, or 27 per cent., were due to gas, of which only 1½ per cent. were fatal, while the total proportion of deaths to all types of casualty amounted to 30 per cent. In the British Army mustard gas alone caused 150,000 casualties, of which less than 4,000 died (2½ per cent.), and about 700 (or under 1 in 200) became permanently unfit. This is trifling compared with the numbers rendered permanently unfit by shell and rifle fire, and of the casualties caused by the latter about 25 per cent. were fatal. It should further be remembered that gas can be entirely kept out of the lungs by the use of a gas mask, while there is nothing that will keep out bullets and fragments of shell.

In July, 1917, a few days before the opening of the third series of battles at Ypres, the Germans heavily bombarded some of our divisions in the line with mustard gas, the properties of which were unknown to us since it had not been used before. Each of these divisions had, in one or two nights, many hundred casualties. All these men had to be evacuated, and if the attack had not been postponed the divisions would have entered the battle that number short. As it was they had to absorb masses of untrained men into their ranks just before the attack. The men affected by the gas were nearly all fit for service again in six weeks or less. What more humane and effective weapon is there than one which pushes large numbers of men out of the fighting line just before a battle, congests the hospitals and railways with casualties, but allows of their recovery from their injuries in a few weeks? The public, however, probably judges of the inhumanity of mustard gas by its recollection of Sargent's picture, exhibited in the Academy of 1919 or 1920, of men blinded by mustard gas at Ypres—a masterpiece of sloppy sentimentalism—and does not stop to think that nearly all the men blinded had recovered their sight within three months, whereas had their limbs and nerves been shattered by high-explosive shell their fate would have been infinitely worse. If Sargent had painted some of the sights which every soldier who has been in modern battles has seen, of men cruelly mutilated by shell fire, the Academy Committee would not have hung it.

The objection to gas is very similar to the objection to submarines, namely that it is an unfair mode of warfare and difficult to guard against. This is a cry that is heard with every introduction of a new weapon of war. It was expressed in the XVth century on the introduction of gunpowder : the mail-clad knight considered that a man with a musket was a cowardly rascal who could kill him from several yards distance but was afraid to approach within reach of the knight's sword. The Chevalier Bayard, described as *sans peur et sans reproche*, is said to have given out that he would hang any such who fell into his hands ! But the knight did not consider his own action unfair when, fully protected by an impervious and very expensive suit of armour, he massacred the foot soldiery clothed in woollen jerkins !

We ought to-day to have got beyond this schoolboy type of argument about the unfairness of new weapons. I fear we have not, if one may judge from some of the utterances in the Press and on the platform, even of persons of the intellectual classes. I have a cutting of an extract from a speech by an eminent member of one of the learned professions. Since the author is no longer living I will not mention his name. He was speaking of submarines. " Of all the instruments of warfare," he said, " the submarine is the most abominable. It is purely destructive." But what about battleships, artillery, and machine guns, or even swords ; are they anything but purely destructive ? " And," he went on to say, " it is contrary to every notion the Anglo-Saxon has of clean fighting and fair play. This particularly devilish form of warfare need not go on if the naval Powers would agree to discard it." It is painful, I think, to see a learned and eminent man displaying in public the mental outlook of a fourth-form schoolboy ! I have of course heard exactly similar declamations about gas from soldiers of nearly all grades, and I cannot claim for them any superiority to the fourth-form outlook. It is a striking testimony to our school systems to find their ideals persisting so far into the adult life of their members !

To return to gas—apart from the humaneness or otherwise of using it, the question of whether its abolition by agreement is really practicable must be faced. Is it to be expected that a nation which possesses great chemical industries, of which the factories can be made to produce war gases with ease, would refrain from using this weapon when it found itself at the point of defeat, its ports blockaded, deficient in materials for other munitions, its population starving ? Whatever agreement it had signed in peace, would it, when it came to such a pass, keep it ? Agreements and rules are all very well for the prize ring, but when a man is fighting for his life and feels his enemy's grip on his throat he will not hesitate to hit below the belt or wherever he can find a vital part ; and

nations will of course do the same. We, unfortunately, incline to the idea that war should be waged with rules similar to those of our sports. But other nations have no such obsession. When our representatives at international conferences bring forward proposals of the kind I have been describing, especially in regard to restrictions which would advantage us appreciably more than other nations, such as the abolition of gas which the Germans have greater facilities for producing than we have, or of submarines which considerably discount our superiority in battleships, our friends and critics on the Continent are apt to attribute the action to the traditional hypocrisy of the Anglo-Saxon race. Of course they are wrong. We are not hypocrites, at all events not consciously so, only at times rather simple-minded and apt to let our hearts run away with our heads.

But failure to think clearly on these subjects may have very serious results. People who agitate for restrictions should begin by facing the facts and ask themselves the following questions :—

(1) All war being indescribably inhumane, is it to the benefit of the human race to try and reduce its inhumanity in two or three minor directions only ? Nothing can really lessen its horrors, and is it not better that the peoples should realize this in order that they may make every effort to put an end to it altogether ?

(2) Would the proposed restrictions really reduce the inhumanity at all ? Is not the desire to abolish submarines or gas based on ignorance of facts, false sentimentality, conservatism, fear of unknown methods, and especially on a fear that in these new methods *our adversary may prove more efficient than ourselves ?*

(3) Would we have a reasonable guarantee that agreements of this sort would not be evaded, or that under stress of defeat the agreements would not be openly repudiated ?

I do not believe that we should have any such guarantee until the nations have completed the task of organizing themselves into a corporate body, armed with powers by which they can promptly bring effective pressure to bear on any nation which unscrupulously violates its pledges. Financial and economic sanctions may doubtless have an effective value in enforcing the decisions of the League in certain cases of dispute, but not in cases of treacherous violation of pledges to refrain from certain forms of warfare, since they take so long to produce effect that the offender would have time to bring about the advantage which his treachery is designed to produce. Punishment after the successful act would be inadequate ; what would be necessary is prompt and effective

action to save the victim. This could generally only be obtained by military action.

There are some who believe that the powers necessary for such cases can only be secured by the establishment, under the direct control of the League of Nations, of an international police force of land, sea, and air forces, while at the same time prohibiting altogether the maintenance of any military, naval, or air forces by individual nations. Although, on the analogy of civil police forces, which have resulted in establishing civil law and order within national boundaries, it may seem that this would be the logical course to adopt, yet it is hardly possible to believe that the nations could be induced to agree to such a scheme until public opinion in all countries has undergone a complete change on the subject of national sovereign rights. The maintenance of armed forces is probably the most valued mark of national sovereignty, and it is most improbable that nations will consent to surrender this right for a long time yet. Even if they would, great technical difficulties would arise in regard to the organization, recruitment, and command of a permanent international force, which, in order to be available for action against any offending nation must be entirely impartial and completely free from any national bias, and must owe allegiance only to the League. These difficulties, though great, would not, I think, necessarily be insuperable. It has been suggested by some that these technical difficulties would be considerably less if the international police were composed solely of air forces, which in the absence of national forces would not have to be of very great strength. That would no doubt be so, but I do not believe that for police purposes air forces without a considerable body of ground troops would be effective. Would air forces alone have been able to police the Saar area during the time of the plebiscite ? Moreover many believe that for an international air force to be effective it would not be sufficient only to interdict the maintenance of national air forces. In order to guard against civil aircraft being used for bomb dropping and other military purposes, it has been suggested that it would be necessary to internationalize all civil aircraft and that all air transport lines, all aeroplanes used for pleasure as well as for transport, and all aerodromes and aircraft manufacturing establishments should be in the hands of an international corporation directly under the League of Nations. But to the establishment of any system of this nature enormous difficulties and obstacles would present themselves. The great difficulty of inducing the nations to surrender sovereign rights to any international body would be reinforced by the motive of greed for profit which would be greatly checked by the abolition of privately owned air lines and aircraft manufacturing companies. Moreover it is very doubtful, to say the least, whether it would be possible to construct a world-wide but

centralized organization under international control for administering all air transport activities of every kind in every country in the world which would be efficient and progressive. It is more likely that its effect would be to cripple hopelessly the development of transport by air.

To me it seems that the nations and peoples of the world are not yet in a state to accept the principle of surrendering their sovereign rights to maintain national forces to an international body, such as the League of Nations. They may come to this in time, as it would certainly be the most effective method of ensuring the security of all, but it will not, I expect, be possible for a long time yet. It is probable that the most hopeful approach to it is by means of a system under which they all maintain national forces, regulated in composition and strength by agreement, but engage themselves not to use them except for pure self-defence or under mandate from the League when action is called for in restraint of an aggressor or a violator of conventions, and in such cases to place them unreservedly at the disposal of the League authority.

When the world nations have become sufficiently civilized to be willing always to bring all their cases of dispute, all claims of any sort for revision of treaties or for changes in the international *status quo*, even when such claims involve what they now call their honour and prestige, before an organized international tribunal which will impartially examine the claim, hear the arguments of the nations against whom it is preferred, and decide it in accordance with the dictates of justice and equity; when they have also perfected a method on some such lines as I have indicated by which the international authority can direct overwhelming force against any nation which violates its pledges or refuses to submit its claims to international jurisdiction; then war, as we know it now, will cease, and such occasions of fighting as there may be will be of the nature of police operations against a breaker of international law. The questions I have been discussing regarding restrictions of the use of certain weapons will then have interest only as regarding how the world-police forces are to be armed in order to carry out their duties with efficiency and humanity, as national police now are.

DISCUSSION.

ADMIRAL THE EARL OF CORK AND ORRERY: I think this lecture is very much needed at the present time when one hears so much about humanitarian ideas. If you look back at the late war, you will remember that the great advantage which the allies had over the enemy—far above the courage of the Army, the intrepid behaviour of the Air Force, and the efficiency of the Navy—lay in the British Merchant Marine; yet we held up our hands in horror when the Germans sunk our ships, although every ship they sank meant a reduction in the great forces that we had to use against them. Very often we condemned this action of the enemy on

the ground that there were non-combatants and women and children in the ships. It was John Nicholson, whom nobody will ever accuse of being a cruel man, who had the courage both to say and to write that in certain circumstances women and children could not be considered. That, of course, is a perfectly proper way of looking at the matter. If women and children choose to travel in ships in a war area, they must take what they get. It is a very cowardly thing for us to try to defend our merchant ships by this plea.

As our ships went to sea to win the war for us, I cannot see myself (I have often said this and been blamed for it) that the Germans were so very wrong in sinking them. Take the case of the "Lusitania": there was a great ship which could carry 10,000 troops to the front in one voyage as her sisters did to Gallipoli. The Germans sank her, and surely to some extent they could plead that they were justified and that it was a fair and legitimate operation of war, in spite of pre-War conventions on the subject.

I would do all I could to stop war. I would do all I could to reduce the weapons which we know can be reduced, such as the size of battleships and guns, so long as I could be reasonably sure that the enemy was not able to make preparations in secret in the way that the Germans have recently been doing. When we have got those weapons permitted to us, then I say we should be able to use them to the fullest extent. The only restriction in war ought to be that immediately anyone surrenders he should be well treated and looked after. So long as he is *in arms* against us we ought to fight to the finish.

The Lecturer used the expression "collective security," which envisages one nation breaking bounds, and all the rest turning on her. But the next European war, as was the case in all European wars in the past, will not be a war between two nations, or of several nations against one, but it will be a war by one batch of nations against another batch. In Europe there will always be two parties: those who have, and those who have not, until the wiseacres who rule us upset that ridiculous treaty which they made after the late war—the Treaty of Versailles. It was an unfair treaty: they imposed restrictions on certain nations, and these latter naturally regard the League of Nations, as at present constituted, merely as an institution to keep those restrictions in force and to assure the victors in the possession of their ill-gotten gains. I do not believe we shall have peace until we get rid of those restrictions and have justice for all nations, and we are a long way from having that now.

I agree with the conclusions of the Lecturer. I am quite sure that until we revise the Treaty of Versailles we shall never have peace, and, so long as we may have to go to war, let us be able to make the fullest possible use of the weapons that we are allowed to have.

BRIGADIER-GENERAL W. F. SWINY: The conclusion arrived at by the Lecturer that it is not much use trying to limit the weapons used in warfare, leads to another point, namely, that we have to be prepared for the weapons that will be used, and probably the chief of them will be those from the air.

We, in this country, may have to face gas, bombs, etc.; what are we doing to meet this danger? Are we building places of refuge, so that, if there was an attack on London from the air, we could minimize the success of the attacking force, by taking to our dugouts or caves for safety? [1]

[1] An answer to the main points raised in this question will be found in the Lecture on "The Defence of the Population against Air Attack" published in the JOURNAL for November, 1935.—EDITOR.

COLONEL A. H. VAN STRAUBENZEE: I think it is clear that we cannot restrict war in any shape or form. We may all dislike and hate it and wish we could abandon it, but we cannot restrict it. What are we to do? The answer is that we must destroy it. We ought to adopt Lord Roberts's recommendation and not lose a day before national service for defence is introduced. We ought to select from our youths those who are best fitted for the various branches; we ought to say to some "You must serve in the Air Force;" to others "You must serve in the Navy;" to others "You must serve in the Army;" and so forth. Every man above the age of twenty who can bear arms must fall in.

CAPTAIN A. C. DEWAR, R.N.: I think we all agree entirely with what the Lecturer has said. War by its very nature is an ultimate appeal to force, and in that appeal to force surely we are going to exert the utmost degree of force. If it is an appeal to intelligence, we shall all exert our utmost intelligence.

The Lecturer spoke of Admiral Richmond's 10,000-ton battleship. I dare say a 10,000-ton battleship would be quite a good ship, but the "Good Hope" was a 10,000-ton ship and she was sunk. I cannot see that we could ever limit ourselves to one particular type of weapon. I think the Lecturer has put that very clearly. Gas is just as humane as, or no more inhumane than any other weapon, and if great issues are at stake I do not see how we are going to limit ourselves. It is the intensity of feeling that is behind the nation that counts. War is an effort on the part of one nation to impose its will on some other nation. Suppose two men agree to fight with single-sticks; one man finds his opponent is better at single-sticks than he is, so he takes up a revolver. Then his opponent uses a machine gun, and then they go on to 6-pdr. guns, then to 6-in. guns, and so on.

Sooner or later nations are bound to come to an ultimate degree of force, if force is going to be the arbiter. If force is not going to be the arbiter and the nations are going to submit to arbitration, that is a different matter, but that is not the problem that we are discussing to-day.

FLIGHT-LIEUTENANT H. M. MELLOR, R.A.F.: Most of us agree that unrestricted warfare has come to stay, and the brunt of this unrestricted warfare is going to be borne by the civilian population who may thereby win or lose a war. When it comes to the use of gas or bombs from the air, or possibly a combination of them, the population will need a great deal of stiffening, and I think the sooner we get on to that the better.

THE CHAIRMAN:

General Thuillier has given us much food for thought, which might become a very interesting philosophical discussion. He spoke about uncivilized and semi-civilized nations. The more I come across what are called barbarous and uncivilized nations, the more it appears that they know just as much about civilization in another form as we do, whether in the stone age of Papua or in the contemplations of Tibet. This is not the place, however, to embark upon a philosophical discussion.

I read in the paper yesterday that the Naval Conference had spent the afternoon in trying to arrive at the definition of a monitor. One delegate said: "my monitor is built differently from yours; it has a speed of 20 knots"; another said: "my monitor will do this and will do that, but it is a monitor." Finally they decided to refer the matter to a Sub-Committee. The root of the whole matter is, of course, whether people aiming at security are going to keep their word or not.

With regard to the humanitarian side of the subject: why should a man living in the stone age be attacked by weapons of precision? A small party of white

men recently crossed a great plateau ; they succeeded in their enterprise, but on the way they killed twenty-three of the inhabitants of the country they were crossing who had not the power of killing them.

With regard to the question as to who creates war, we know that it is the ambitions of the financiers and industrialists. All we do is to implement those ambitions —and we pay for it afterwards, if we are alive !

I had a letter this morning from General Smuts—one of the greatest supporters of the League of Nations, a visionary and an idealist. He said : " At one time it appeared as if Great Britain was almost afraid to face the situation in the Mediterranean. This was very disturbing. It would be hurtful to British prestige. The British Empire should fear nobody but always fearlessly do its duty by the world." If we are to do that we must have the means by which to do it. That no one wants war is almost a trite saying.

In conclusion, I would ask General Thuillier to accept our thanks for his very interesting and practical lecture on a subject which requires to be ventilated very much in this country.

The customary votes of thanks to the Lecturer and Chairman were carried by acclamation.

THE SITUATION IN THE FAR EAST

By Sir Frederick Whyte, K.C.S.I.

On Wednesday, 8th January, 1936.

Admiral Sir William Goodenough, G.C.B., M.V.O., in the Chair.

The Chairman, in introducing the Lecturer, remarked that Sir Frederick Whyte had spent many years in the East. Not only had he made a special study of his subject, but he had the faculty of acute perception which he combined with facility of expression.

LECTURE

WE are witnessing to-day a new phase in the long drama that began when the world of Asia was brought into contact with the Powers of the West, and particularly the invisible influence of western culture, science, and civilization. The instinctive attitude of both the Chinese and Japanese peoples to the message of western culture was one of resistance, for both of them believed that they had created for themselves an order of society, a way of life, a manner of thought, far superior to anything that could be brought to them from overseas. Partly because of their distance from other parts of the world, particularly Europe, and partly for other reasons, they had remained in comparative isolation. The arrogance of the Chinese regarding their achievement in art, literature, and the construction of a great social order was very largely justified, for their society had, in fact, survived the dangers and vicissitudes of two or three thousand years of recorded history—a claim which most civilizations are not able to make. Their attitude towards the men and the message of the western world when it was first brought to them, had a very substantial justification in the character of their own social, cultural, and civilization achievement in past times: how could these barbarian men from overseas—ocean men, as they called them—coming, of necessity, from inferior parts of the world, possibly bring with them anything that was worth receiving? It was concealed from Ch'ien Lung and from all his successors in the declining years of the Manchu dynasty that, behind the apparently rude and barbarian manner of the ocean men coming from overseas, there was a secret of power that had not been vouchsafed to the Asiatics themselves and certainly not to China. Because

that secret was concealed from the Chinese, they were unaware of the fact that the XIXth century held in store for them one humiliation after another, largely because they were not prepared to meet, on such equal terms as were possible, the advancing Powers of western mankind. The Chinese maintained this resistance throughout the greater part of that century, varying it by compromises here and there.

Let me draw your attention to a fact which usually escapes even Westerners who have lived in the Far East for some time: we have so completely accepted the propaganda of modern nationalist China that we ourselves talk about the unequal treaties imposed upon successive Chinese Governments by their conquerors coming from the West —ourselves, the French, the Americans, and others. But in what sense were those treaties unequal? The modern nationalist in China is perfectly entitled to claim that those treaties were imposed upon China, that we extracted extraterritoriality from the Chinese, that we demanded special settlements in which our nationals might live, as a sort of favour conferred upon us. So, in the minds of successive British Governments the extraterritoriality appeared, and so it does still appear; but in the minds of the Chinese who granted extraterritoriality, and who set us within the pale of what is now the international settlement of Shanghai, or the little island of Shameen at Canton, or other places, settlements and concessions, they were not conferring a benefit upon us; they were placing us, like infected lepers from overseas, behind a special stockade, across which we were not allowed to penetrate into the main body of China. This was deliberately done to prevent western mankind coming too closely into contact with the Asiatic. That process went on, as I have said, during the greater part of the XIXth century, broken here and there by various compromises made by intrepid individuals who were determined to find out what lessons western science could teach them.

The Japanese, in the first instance, had exactly the same opinion of the relative merits of our civilization and theirs. But there was one profound difference between them and the Chinese at that time, as there still is to-day. The Japanese are naturally of an inquiring, not to say inquisitive frame of mind. To illustrate what I mean by this, let me tell you a story. Just about two hundred years ago there put into the port of Nagasaki a Dutch trading ship. There was a doctor on board who had in his cabin a textbook of anatomy. Two young Japanese students of medicine picked up the book and, in turning over the pages came across a picture of the human body anatomically presented. They found to their astonishment that the European had his heart on the wrong side—it is well known to this day that Chinese medicine does put

the heart in rather a strange place. "Now," said these Japanese, "we have discovered why these persons from overseas behave in such a strange and inexplicable manner, and what God has decreed no man can change. If God has put the hearts of Europeans in the wrong place, nobody can help them; but it does explain the fact that they and we are not able to understand each other." Yet, being of an inquisitive frame of mind, and having had a glimmering of science, even if it was only the classical system of Chinese medicine, they said to themselves: "But there is just one chance in a hundred that the European may be right. We know that he has done some very remarkable things; some of the very things that are coming out of the hold of this Dutch ship are what we like ourselves and which Europeans can make better than we can." And they found that the European diagram of the human body was correct! The moment they set out on that scientific search, using our critical method of scientific, objective inquiry, they had started on a line which carried them from that cabin on board the Dutch ship two hundred years ago to the point they have reached now of being one of the unchallenged Powers in the eastern world. That story illustrates better than anything else could do the readiness of the Japanese, when confronted with a difficulty, not to accept authority, but to say to themselves: "We will find out for ourselves whether there is a solution of this problem. If two explanations of a particular phenomenon are presented to us we are going to see which is right." The application of science to all the problems of life presented to them, and the determined way in which they have followed out the lessons of science as taught to them by western civilization, is the fundamental explanation of the position at which the Japanese have arrived in the world of trade, politics, and war to-day.

Fundamentally the difference in the two attitudes—the continuing arrogance of the Chinese in the belief that they had created a better way of life than we have, as contrasted with the same initial arrogance on the part of the Japanese, corrected by their determination to find out the truth if they can—explains the entire situation in the Far East to-day. The Chinese represent the great massive power of a more or less untutored population, but they have never been able to mobilize that power effectively either for their own dominion or, so far, for any other effective modern purpose. Thus it is the effects of what I have called contact and resistance in the contrasted pictures presented by China and Japan which are the foundation of the situation as it confronts us to-day.

Now I will take you at one bound from the first contacts between the western world and Asia, as represented by China and Japan, to our

own time. I need not rehearse the recent history of the present crisis, but perhaps a word or two in explanatory introduction about Manchuria may be of value. Manchuria is only one facet of the whole problem, but it happens to throw an effective light on it, both from its Chinese and from its Japanese side. A crisis arose in Manchuria, not so much because this or that incident occurred, but because underneath the stage on which these incidents took place the whole foundation was undergoing a radical process of change. That country was the last part of North-East Asia to become affected by modern doctrines, by nationalism, or by any of the political, social, or economic forces that were brought to bear upon Asiatic life from the West. As long as Manchuria remained under the more or less effective, if rough and ready, control of the old Marshal Chang Tso-lin, none of the subversive forces which have swept over China from Canton to the Great Wall in the last ten or fifteen years had any vital effect upon the political, social, or economic life of that enormous territory. But the moment the old Marshal was killed, in the summer of 1928, and the young Marshal took his place, it became perfectly clear that the shoulders of the new ruler were not capable of carrying the burden that the old man had borne with comparative ease. Not only was the government of Chang Hsueh-liang in Manchuria in the years immediately following his father's death, from 1928 onwards, a weaker government because the man at the head was not as strong as his father, but it was a government confronted with problems that were rapidly becoming almost unmanageable. Just at the period when the young man began to take control of the three Eastern Provinces (the Chinese name for Manchuria), the forces which brought about the economic depression in our part of the world were also beginning to have an effect in that country; and the moment the purchasing power of the markets of the world declined, the foreign markets which had hitherto maintained the prosperity of Manchuria, and therefore of the Manchurian farmer, by consistently increasing purchases of soya beans and other products—the mainstay of Manchurian prosperity, fell with it. The result was that in 1929 and 1930, as the months passed, increasing numbers of farmers who had hitherto led a comparatively prosperous existence, largely upon the foreign markets, found their livelihood taken from them. They turned to the classical resort of the distressed farmer in the eastern world, particularly in China—banditry. We all know how widespread and how devastating were the forces of the economic depression. If it had been a normal period of decline and fall in Manchurian prosperity, probably the situation would never have grown as serious as it became by the autumn of 1931; but it was something more than a normal ebb and flow of trade; it was an unusual era of depression, and the consequence was

that unusually large numbers of Manchurian farmers, bereft of a profitable existence, turned to banditry just at the time when it was becoming necessary, if Chang Hsueh-liang's government was to survive, for him to come to terms with the Japanese on various outstanding questions, particularly railways.

The 18th September, 1931, is generally regarded as the date of the beginning of the Manchurian crisis ; but actually it started at least four months earlier, for it was in the summer of that year that the situation really became critical. Viscount Uchida, who was then President of the South Manchuria Railway and afterwards became Foreign Minister of Japan, warned a correspondent of *The New York Times* in May of that year that the situation was developing in such a way that he would not be able to hold it, by which he meant that the control of the whole Manchurian situation would pass from the somewhat insecurely seated civil authority, both in Tokyo itself and in Manchuria, into the hands of the General Staff, who had been itching for years past to use military means to deal with the Manchurian problem. The last occasion which presented itself to Chang Hsueh-liang to come to terms with the civil leaders of Japan occurred at the railway conference which was due to meet just before midsummer of 1931, when all the various outstanding questions that had been boiling up to an issue for several years past were due for a settlement. Chang Hsueh-liang appointed one of his men as official Chinese negotiator with the Japanese, but when the day of the conference dawned the Chinese negotiator was nowhere to be found and the conference never met. It was this failure in June which precipitated events and caused the entire control of the situation to be turned over to the Japanese General Staff in the following September. The latter said to the Government in Tokyo : " You have been talking about a civil settlement of this Manchurian question ever since the old Marshal died ; you asked for another chance to find a *modus vivendi* ; now you have had your last chance, and we are not going to give you another." So the General Staff took charge, with results which are well known to all of us.

The prime and root cause of the whole trouble in the Far East is the condition of modern China during the revolution. I do not mean the character of modern China created by the revolution, because we are dealing with a China whose essential characteristics were created in the misty ages of history and have not yet been changed ; but the condition of modern China in the revolution is the primary cause of what we call the crisis in the Far East. I am not going to stop to inquire whether in the course of a quarter of a century, which is the exact period during which the Chinese revolution has been under way, it would have

been possible to achieve the gigantic task of social, political, and economic reconstruction necessary to transform China into a capable modern state : most of us know the answer. But, although the Chinese have not completely failed to accomplish the task—indeed they have achieved a very remarkable measure of success, always given the magnitude of the task—yet they have failed to put their house in order, and this failure is the prime root of the trouble. That it has developed exactly as it has done, and that it has caused so much consternation to the Chinese and to foreign Governments as well, is due to the manner in which the Japanese General Staff have exploited the opportunity offered to them by Chinese disorder. I believe the Chinese to be one of the greatest peoples that God ever made on the face of this earth ; but they are not a political people ; they have not yet learnt the value of the kind of social and political discipline that is necessary for the creation of a modern state such as our own.

Now, although I have served in the East for a comparatively short time—some eleven or twelve years in all, I have come to certain conclusions, and one of them every experience which I have had in the East—in India, China, and Japan—since the War, has rubbed steadily into my mind, and it is that when describing, measuring, or judging any phenomenon, person, or policy that you encounter in the East, particularly in the Far East, you cannot accurately render eastern things in western words. No doubt, we cannot help using terms like liberalism, imperialism, communism, and so forth ; yet the moment you apply those terms to a Far Eastern situation, or rather, the moment you think, especially in the case of Japan, that you have succeeded in pinning down some Japanese phenomenon, or person, or policy by a particular label derived from the vocabulary of European political and economic experience, you find that phenomenon, or person, or policy slipping through your fingers, because the label does not belong to it. We cannot avoid using our own vocabulary, but we must realize that many of the terms in it have only a vague and general application to the situation to which we attempt to apply them. Take communism in China. Communism, of course, is a very convenient label used with varying meanings. It has one meaning if you are writing a leader for *The Morning Post*, and it has a totally different meaning if you are writing a leader for *The Daily Herald*. Which gets at the truth of the matter I do not know, but in neither case does the sense in which the word is used fit the Chinese situation. The word " communism " is a very convenient term of abuse ; but it is like a coin which has been in use so long that the superscription has been wiped out. In the case of its application to China, that is not the only point to be considered. The Chinese, in my belief, do not possess the fundamental characteristics

and qualities necessary for a successful communist experiment. The Chinese live by, in, and through property. Their conception of family life, all the *lares* and *penates* of their ancestral worship, everything that matters to them must of necessity be translated through the possession of property in some form or another—a house, a grave, a temple possibly. Even to the coolie his bamboo pole, rice bowl, and opium pipe are symbols of property, and he believes that the wheel of fortune will revolve in such a way that some day he will be a rich man like his neighbour; therefore he is not going to be a communist. I once asked a young Chinese what was the equivalent to the word "communism" in his language, and he replied "We use the word 'share-property,' and because we use the word 'share-property' to mean communism it is in the end a doctrine that cannot possibly appeal to my fellow countrymen, because the conception of personal possessions or property is so deeply rooted in their nature, in their whole view of the universe, that a political or economic doctrine which is based upon the conception that there shall be no property, cannot, in the end, appeal to them, for it seems to them to strike at the very roots of existence." When we use the word "communism" we have in our minds a definite connotation, describing an experiment in social, economic, and political *destruction*, followed by *reconstruction*. That is totally alien or foreign to the Chinese mind. We shall get much nearer the truth about Chinese communism if we use the well-known European word "agrarianism," which is as remote from Lenin's or Marx's conception of communism as it can be. The very essence of agrarianism is the small man, who hopes that he is going to possess property, banding himself together with other such men against the man who holds a large amount of property; it is the alliance of the small dispossessed peasants with the determined and essential aim that they shall at least have a little property before they die. That is exactly the motive at the back of the minds of the vast majority of the Chinese who are commonly enrolled by loose-thinking foreign correspondents as Communists.

Therefore, not only is it probably true that in the last resort communism on the Russian model, at all events, can have very little permanent attraction to the Chinese, but the other side of the shield is equally, if not more true: the one thing necessary, if communism of the Chinese kind is not to succeed in the end in vanquishing Chinese nationalism, is for the representatives of Chinese nationalism to see that the essence of their problem is agrarian in form.

Now let us turn to the Japanese side of the problem, and examine the dynastic, strategic, and economic motives of Japanese policy in East Asia. In the autumn of 1930 I went out with a party from Kyoto to

the famous mausoleum of the Meiji Emperor on the slopes of Momoyama. We wanted to see the moon rise over the other side of the Peach Mountain; so we waited, and eventually not a soul was left, even the guardian of the tomb had gone. Just after the moon had appeared, we heard a curious sound at the bottom of the steps—there are about five or six hundred of them from the road to the top of the mountain, where there is the great mound under which the Meiji Emperor was buried. Eventually we realized that the sound was made by a pair of feet with spurs on, which were coming up step by step. We drew to one side and allowed an officer to pass—I recognized him as the Commander of the Kyoto Division with whom I had dined a day or two before. He came to the top of the steps, drew himself up and saluted; then he took his cap off, walked forward, knelt down, and did *puja* to the memory of his Emperor in three profound and slow bows. He rose, put on his cap, saluted, stepped backwards until he reached the edge of the terrace, then turned round and went down again. There was a General Officer who, in terms of our geography, had left his command in London, taken an electric train from Waterloo to Windsor, and climbed a hill five hundred feet high on a very cold late evening in November to do honour to what—merely to the memory of a buried monarch? No, I think it was something more, and I think if we can get into our minds that "something more" that was in the mind of that Japanese officer who came to salute the grave of his Emperor, we shall begin to understand one of the most powerful motives at work behind the whole of Japanese policy in the Far East. It was not merely the motive that might have worked in the mind of, say, Lord Roberts paying a visit of respect to the grave of Queen Victoria: it was that, of course, for it was the feeling of the loyal subject towards the monarch under whom he had served; but interwoven with it there was a religious motive which is not present in our loyalty to the throne or in our patriotism. Whether we understand it or not, we have to remember that it is what we call in the cold-blooded language of the lecture platform a great sociological fact.

If you talk to General Araki—he was not the officer to whom I have just referred—or, as I did in Mukden just eighteen months ago, to General Doihara, or to any Japanese officer who is at all articulate, you will find in them not merely something of the spirit of the courageous soldier—which, of course, they have to the extent of a hundred per cent., but also something of the spirit of the more intrepid Christians who led the recovery of Great Britain in India after the Indian Mutiny; something of the profound attachment to Service traditions; of the intense loyalty of the subject towards the throne; of the passionate devotion of the devout Roman Catholic to the memory of his particular saint or to the conception of the Virgin. Even so, it is difficult to

illustrate by any European analogy all that inspires the attitude to life of the Japanese officer.

The reason why the army in Japan has, so to speak, summoned all those forces from its own inner consciousness and made them articulate in the form of the driving force behind the propaganda and policy in East Asia, is that, in the course of the last twenty years, the more conservative, the more aristocratic, or those most deeply imbued with the conception of clan loyalty and, through clan loyalty, loyalty to the throne, have awakened to the fact that the creators of modern Japan, in importing the machines of the western world, had also imported something much more dangerous. They had imported the critical mind that was necessary to make those machines, and with it a critical spirit of inquiry not only to all the phenomena in modern Japan, but also to all the traditions, the culture, the very foundation of the nation. In this they saw a danger to their own fundamental beliefs and they determined to resist it. That is why the Japanese Government has made itself rather ridiculous in the opinion of many people in the Far East, by its severe campaign against what it chose to call the communists in the schools, colleges, and universities of Japan in the last six or seven years. But there was a profound truth behind it. The General Staff, representing the traditional Japan—and there is not the slightest doubt that the essential representatives of the spirit of Japan to-day are to be found in the army—were taking any and every means that came to their hand to protect the ancient heritage that had come down to them from the past and to which they were profoundly devoted, from the invasion or the attack of these dark and alien forces, whether republicanism from China, liberal democracy from Western Europe, or communism from Soviet Russia. When they had, as they believed, won the first round in the contest by suppressing these subversive forces in their own country, they carried their mission overseas, and in the Manchurian campaign you will find, inextricably interwoven, this conception for which I cannot find one single word. It cannot be called merely dynastic, because it is something more than dynastic; it is an attempt to save the essential Japan from the dangers that beset her from outside. That, I believe, is the first and fundamental motive that operates in the minds of the simple, single-minded soldiers, both the young officers and the staff, though, as a matter of fact, there are only a few of them articulate enough to explain it or to use it as a rallying point for public sentiment in the country as a whole.

The first motive, then, is this dynastic motive—the purpose of saving the essential Japan from the infection of foreign ideas. The second motive is strategic. The third is economic, but this is by far the least important in the justification for Japanese policy. Before this audience

I hardly need to elaborate the strategic justification. Just as in 1905 the presence of Imperial Russian forces on the Korean and South Manchurian border represented a danger to Japan that they were bound to thrust back, so with the development of communications and the longer striking power of modern weapons the Japanese believe that they have to thrust the Soviet forces still further back, and they have chosen the moment to do that when their rival is not prepared to stand her ground anywhere in North-East Asia. The reasons why Soviet Russia is not prepared to do that at the present moment are two. The first is internal: in the course of the development of her five year plan, which is now in its eighth year and will, of course, turn out to be a fifty year plan, naturally and inevitably the greater part of Russia's national energy must be devoted to the process of internal reconstruction. Until that is completed she will not possess the necessary firm national foundation, or, shall I say, the industrial foundation necessary for the operation of modern warfare on a large scale. That internal reason alone would be a sufficient justification for the Soviet Government refusing to accept provocation at the hands of anybody, lest this preparatory process of the development of her internal resources be arrested too soon and perhaps even broken by premature defeat in the foreign field. The second reason is that Russia is more occupied with the security of her western frontier than with anything that can happen to her Far Eastern possessions, and therefore, until the European situation becomes clearer than it is at present and the Government in Moscow knows where it stands in relation to Nazi Germany, to other Powers in Western Europe, and to her neighbours in the South-East, it is not going to take any major risk in the Far East. These two reasons are sufficient justification for Russia conducting what has been practically a long strategic retreat in the face of Japanese aggression from Vladivostock to Mongolia. Russia will not always be uninterested with regard to the Far East; the time will come when she will return; meanwhile she is preparing for herself an industrial, economic, and military condition in Eastern Siberia which will stand her in good stead when she has to fight Japan on the battle-fields of the Manchurian War. Actually, the battle-fields of that war will not be in Manchuria itself, but North and West of Manchuria. For one thing, Russia has to reconstruct her means of communication. She sold the Eastern China Railway because it was becoming worthless. She knows perfectly well that the long loop of the Trans-Siberian Railway running from Chita to Vladivostok is too vulnerable to be of much use to her as a means of communication in war, and therefore I think it is a fair prediction that by 1938 or 1939 she will probably have completed a new railway running round the North end of Lake Baikal, which will connect the central block of her

present Trans-Siberian Railway line with, perhaps, an existing and, perhaps, a new port out on the Far East coast ; this may be icebound for a considerable part of the year, but the Russians will contrive to keep it open. That new line of railway, running two, three, or four hundred miles North of the present line of the Trans-Siberian Railway, will be the real artery of commerce and war in the future in that part of the world. Those, broadly speaking, are the reasons why Russia has to wait.

It is very often asked, why, if Russia was unready, did not Japan strike ? Why did not the often predicted war break out in 1932 or 1933 ; for, consider the situation : Russia was not prepared—she had shown a disposition to retire ; the United States was in the throes not only of an unprecedented economic depression but, perhaps even worse, of a presidential election year ; Europe was so completely immersed in its own particular affairs as to be utterly disabled from effective action in the Far East. Therefore every single circumstance in every quarter of the globe seemed to be profoundly favourable to immediate Japanese action. The Japanese General Staff succeeded a great deal more quickly in their Manchurian enterprise than they ever believed possible. They succeeded in laying their hands upon more territory in a shorter time than they had thought likely. Therefore their hands were full. But one of the principal reasons why Japan has been spending a good deal of money on re-equipment, both military and naval, is that she has discovered that in regard to mechanical equipment and in other directions a great deal must be done to bring her army and navy really up to date. In short, it was because her hands were fairly full already, and her military machine was not prepared for the strain of a great war, that Japan held her hand. Whether, when her preparations are completed, as they ought to be in about a year's time, she will turn on Russia and drive her still further away is an open question. I am inclined to think on the whole that she will not do so, but that she will busy herself with the process of consolidating the gains she has won in the past four or five years. Most of us do not realize that, in the course of the lifetime of a comparatively young man—from 1895 to 1935, just forty years—Japan has either conquered and annexed or, at all events, brought within her control, territory in North-East Asia as large as Germany, France, and Spain combined. That suggests, of course, to the European mind a tremendous prize. It is a tremendous prize in the territorial sense, and it is a tremendous satisfaction to what may be called the imperial appetite, but whether it will be a satisfaction to the economic appetite of modern Japan is a very different question. I am one of those who are profoundly sceptical as to the net result of the recent campaign of Japan being anything like so large an economic

product as has been promised to the Japanese people by the propaganda of the army; in fact, I am convinced to the contrary. In the first place, as we know and as even the Japanese army is beginning to realize, Manchuria is not going to be a great home of colonization for the surplus population of Japan, because the climate and other conditions make it unsuitable for that purpose. I do not believe that ten or twenty years hence there will be very many more Japanese actually living in Manchuria than there are to-day. In a word, as is acknowledged by every serious student of economics in Japan itself, and as has been well known to most serious foreign students of the problem, the opportunity for colonization throughout the whole area of North-East Asia, including Mongolia and Manchuria, will not be such as to fulfil the first and the major promise made by the General Staff to the Japanese population.

Two years ago a friend of mine—a professor in Tokyo University, was sent for to take charge of an economic mission to Manchuria. He was told: "We know that you have formed certain opinions regarding the possibilities of Japanese colonization in Manchuria, but those opinions were formed while Manchuria was largely under the control of the Chinese Government. Now it is under the control of the Government of Manchukuo, which, after all, is ourselves. Therefore the situation has changed, in that we can now do what we like with the country. Will you please go over there and, with your expert knowledge of agricultural economics, make an inquiry and draw up a plan of colonization?" He went, and, of course, discovered what he knew beforehand was the case, and reported to the General Staff accordingly; but they were not satisfied and got out a scheme of army colonization. In selected places in Manchuria they planted out army colonies, consisting of reservists who had returned to their farms in Japan, gave them a certain amount of money, arms, seed, and so on, and set them down, not in individual farms, but in comparatively large social units, capable, one would have thought, of protecting themselves against physical dangers and also of providing thenselves with at least a tolerable subsistence. After a very short time, however, over twenty-five per cent. of these colonists had deserted and gone back to Japan. Therefore it is gradually penetrating the minds of the General Staff that Manchuria is not going to be the great economic prize that, in the course of their propaganda, they promised it would be; nor, as a market, can that area possibly satisfy the requirements of the expanding industry of Japan. The Japanese people and their leaders to-day regard East Asia as if it were capable of establishing its own destiny and maintaining itself regardless of what happens in other parts of the world. It is true that the remoteness of the Far East makes it very difficult for any of the other Powers in the world to bring their naval and military forces

effectually to bear on Japan in a Far Eastern war; but that does not alter the fact that a solution of the Japanese problem—which is not naval or military but economic, cannot be found on a Far Eastern basis alone. That is where the bias of modern Japanese thinking is at fault. Gradually, as the discovery is made that the great success which the Japanese General Staff has achieved will not produce the economic result they have promised, there will almost certainly be a very substantial modification in the attitude of successive Japanese Governments towards their position in the world as a whole.

I have laid a great deal of emphasis on economic factors in the course of this discussion, and I have done so deliberately, for this reason. The principal contribution that the United States or Great Britain can make to the solution of the Far Eastern problem lies largely along economic lines. As you will have seen, the main reasons why this programme has been carried out are not economic but strategic and dynastic, but it may prove that the eventual solution of the whole problem presented by Chinese disorder, aggravated by Japanese imperialism, will have to be found along economic lines of a world-wide character, and then, and not until then, can the influence of the United States and England be brought to bear.

The question is often asked: "is war in the Far East inevitable?" It may be that war between Russia and Japan is inevitable. I think not. It is conceivable, though I myself do not believe it to be probable, that there may be a war between the United States and Japan. It seems to me that the circumstances which would provoke war between the United States and Japan would almost inevitably bring us into that war. What I believe to be certain, and I think can be laid down as an axiom, is that in our present position in the world, especially in the position of uncertainty that Great Britain occupies at the present moment and that we have always occupied after every major conflict in Europe, it is impossible for us to say exactly what our Far Eastern policy is likely to be in the immediate or more distant future. A great many of the people who comment on the position that Great Britain occupies in the modern world to-day forget the profound difference between our position in 1936 and the position that we occupied at almost any period in the XIXth century. Throughout the greater part of that century there were very few Powers that could have challenged us. To-day perhaps we are *primus inter pares*, perhaps not even *primus*. At all events, we have to acknowledge that there are a certain number of other countries that are equal to us in power. Therefore the problem with which we are confronted is totally different from the problem as it existed during our expansion in the XIXth century. If I were asked to state the order

of importance of the Powers interested in the Far East to-day, I would put Japan first, Russia second, the United States third, and ourselves after the United States, for the reason that the major factors that will influence our decisions on matters of war in relation to the Empire as a whole, particularly to our general security, lie in Europe, and therefore we must ever bear in mind the relation that European problems bear to the problem of imperial security as a whole. We must also remember that, much as some of us are attached to the Far East and believe the Far East to be a very important factor in the foreign policy of Great Britain, yet it lies more on the fringe of British interests than almost any other area in the world. It is our business to see that the development of our great imperial estate all over the world, centred as it is in the home country and spreading out into the Dominions, India, and so forth, proceeds uninterrupted by war as far as possible. Our major concern, therefore, is uninterrupted communication between the various parts of the Empire, if possible maintained in peace, and if war breaks out, protected in war. The Far East lies just a little off the main line; but if Japanese expansion goes on, it might be brought right across the line of our imperial communications. We cannot tell what will happen in the future. If Japanese policy remains in the hands of men animated by the spirit of those now in control, and if, having discovered that the whole of their enterprise of the past ten or fifteen years—particularly the last five years, is not going to bring them that relief from drastic economic pressure at home that they have promised to their own population, they may turn in earnest to the southern and western part of the Pacific. Then perhaps we shall be confronted with a real threat to our imperial communications.

Before that happens, Japan may find the United States in her path. That brings us to the question of where that country stands. I visit America frequently, but I find the true interpretation of American policy in the Far East most difficult. Those of you who have paid any attention to events in the Far East during the last two or three months will have recognized the remarkable contradiction in significance of two events which occurred at Manila on one and the same day. One morning Vice-President Garner arrived there on the official mission of conferring independence on the Philippine Islands—not indeed complete or unconditional independence, because a ten-year period has to elapse before that independence is made absolute—but still to confer independence in principle. This would seem to imply that the United States have, in effect, said to the Philippines: "for a long period to come, throughout the XXth century, we are going to give you complete home rule, but in order to guarantee you from outside interference, we are going to maintain a veto on your foreign policy." By so doing they of necessity

create a sort of vacuum in the Far East. Everybody knows what will be the result: although Japan will not walk in and take the Philippines by force, she will develop her trade and get concessions of different kinds from the Philippine Government; then at her chosen moment, when we are embarrassed elsewhere, she will find that the Philippine Government is unsatisfactory and incapable of protecting legitimate foreign interests. She will sedulously build up a case for intervention and will turn round and present it to us with such force that many people in this country and elsewhere will be ready to support Japanese control of the Philippines. That will bring Japanese power and influence so much nearer our imperial communications that we shall have to bestir ourselves. I must leave the solution of that problem as a note of interrogation; but it will be observed that President Roosevelt himself has left the question of naval bases in the Philippines still open.

On the same morning as the Vice-President landed in Manila, there arrived in the harbour the flying boat "China Clipper." It was only carrying mails, but it was proving something else: San Francisco, which appeared to be so far away from Manila that the Japanese and Chinese natives hardly believed it existed at all, was suddenly brought within six days' flight of an experimental aircraft flying for the first time. The "China Clipper" was a reminder to everybody in the Far East of what was happening almost out of sight in the North-East, namely, the development of new and large air bases by the military force of America in the Aleutian Islands.

We see, therefore, that the Powers primarily interested in the Far East are Japan, Russia, and the United States, and, if I put our own country after the United States, I do so for the very good reason that, as I have said, our interests are largely centred in Europe and in the development of relations between ourselves and the Dominions overseas. If we can contrive to have a relationship set up in the modern world which will guarantee to us the satisfactory and fruitful development of our own Imperial State as it stands at present, I do not believe we should be prepared to go to war in the Far East on any question that might arise. Our contribution to the Far Eastern problem can be made when the Japanese come to a more amenable frame of mind. If failure to garner the fruits of a great imperial enterprise in North-East Asia is brought home to the Japanese people, and if they say to the General Staff: "You were wrong in your estimate of what you could achieve, and we are going to give another chance to the diplomats, the politicians, and the corrupt Parliamentarians, whom you kicked out five or six years ago," and they come back, then I think we can do something like a deal with modern Japan. We can say: "We know quite well what

your mission in Asia means ; we have had one too and can talk the same language. Now that you know that the solution of your problems does not lie in East Asia alone, but must lie in a world-wide economic agreement with those Powers that control the markets, the capital, the accessibility of raw materials, and so forth, in other parts of the world, you can and must meet us half-way. If you are prepared to acknowledge that we have a place in the Far East, *and implicitly on condition that you do acknowledge it*—we are not demanding too large a place—we are prepared to guarantee you certain opportunities for the development of your economic life which may relieve your pressure at home." Through that narrow opening I see something of daylight and peace for the Far East in the future.

DISCUSSION.

LIEUTENANT-COLONEL VISCOUNT MERSEY : I should like to ask the Lecturer his opinion on three small matters.

The first is with regard to Manchuria. Does he attribute the lack of success of Japanese enterprise there to climatic conditions, which seem to be not very different from those in the North of Canada or the northern islands of Japan, or to a lack of colonial initiative ?

My second enquiry is as to the future position of the Dutch Colonies and of Australia. The Lecturer mentioned the Philippines, but I am thinking rather of the undefended Dutch Colonies, with their commercial opportunities.

Thirdly, what effect does he consider that the increasing urbanization of Japan is like to have upon the militaristic spirit of the General Staff, which I quite agree with him is the real distinctive character of Japanese policy at present ?

THE LECTURER :

The points raised by Lord Mersey are important.

The fact that Manchuria offers only a limited prospect to either a Japanese colonization or to a wide and expanding market for goods manufactured in Japan is due to a combination of climate and of the difficulties that the Japanese encounter in competing with the existing Chinese population. Of course, it has been said : " Yes, but we are going to move the surplus population from Japan into Korea and put the Koreans into South Manchuria and see how they get on." To some extent that has been tried already. Broadly speaking, however, the severity of the climate, which is hotter in summer and a great deal colder in winter than it is in the greater part of Japan, accounts for the great unwillingness of the Japanese to settle in Manchuria ; moreover they do not like going abroad. It would need extreme pressure of discomfort, amounting to real distress, to drive the Japanese out into any part of the world, even into a part of the world much more favourable to them than Manchuria. Secondly, even if they went there, they would find that they had to compete with the Chinese who live on a lower standard of life, and that they would not be able to do.

With regard to the Dutch East Indies and Australia, I consider that all the places on the line of communication from Colombo through Singapore to Australia and New Zealand hang together and that a threat to any part of that line of communication would become immediately an occasion on which—I think rightly—the

entire forces of the Empire would be mobilized for purposes of self-defence. That is to say, from the point of view of their eventual fate, the Dutch East Indies are part of the British Empire.

With regard to the effect of increasing urbanization and industrialization: so far it looks as if the military party had discovered the trick of perpetuating amongst the Japanese masses the ideal they have set up. I was talking to the production manager of General Motors in Osaka, and he said that, whereas their difficulty used to be to deal with trade unions of the ordinary kind, now their difficulty was to deal with trade unions of a typically militarist or fascist kind. They had simply transformed themselves into what they were required to become by the powers-to-be at the moment. Personally, I rather question whether the government and the army in Japan were not taking an exaggerated view of the actual dangers involved, either in communist propaganda or in the influence of science as an acid eating at the heart of the foundation of Japanese culture. I think, too, that although the influence of what I may call tradition is not so great in modern Japan as it used to be, yet it is still an appeal of extraordinary strength and will remain so for a long time, giving the Japanese nation cohesion and a social discipline which ought to be the admiration of the world.

THE CHAIRMAN:

I do not think I have ever taken the Chair at a meeting where the ground covered has been so comprehensive, where the matter has been so clearly put in its proper proportions, or where the audience has been given a greater feeling of real comprehension of the subject.

I do not think everybody quite realizes how different is the position of the General Staff in Japan from their position in any other country: how independent they are of the government, and how they can both create and enunciate a policy. The Lecturer will agree with me that that is so; I mention it only because he no doubt took it for granted that it was generally known.

The matter of communications is of vital importance. We in this Institution study the prosecution of military operations in the broadest sense, because the Services have to implement the wishes of those who create wars. Those communications to which the Lecturer referred are one of the principal subjects in that connection.

To turn to the characteristics of Eastern peoples: note the intense affection of the Chinese for their land; many of you have read Mrs. Pearl Buck's books, especially the one called *The Good Earth*. It is strange that, with all the affection which the Chinese have for their possessions, there is such a lack of some general national spirit to hold them together. As you know, the northern Chinaman can only speak to the southern Chinaman through an interpreter: that is one of the reasons for lack of coherence in Chinese policy.

It is my privilege to offer to the Lecturer, on your behalf and on behalf of the whole Institution, our warm thanks for his Lecture, and to express our admiration of the way in which it has been put before us. It must be a great encouragement to many, especially to younger men, to find that one man, by real application, can acquire such a marvellous amount of knowledge and such a clear-sighted view of all to which that knowledge leads.

The customary vote of thanks to the Chairman and Lecturer were carried by acclamation.

THE INFLUENCE OF THE FIGHTING SERVICES IN JAPAN

In the light of recent events in Tokio and of Japanese policy in the Far East generally, the following summary of an article which appeared in "The Japan Times and Mail" of 26th November, 1935, is of interest.—EDITOR.

THE unique position of her army and navy in Japan's politics is derived from the special manner of appointment of the War and Navy Ministers, and from the clear distinction which is drawn between the conduct of State affairs and the command of the armed forces. The regulations governing the organization of the Cabinet provide that the War and Navy Ministers must be chosen from among Generals and Lieutenant-Generals or Admirals and Vice-Admirals on the active list. These regulations were revised in 1921 so as to enable reserve officers of the specified rank to be selected; but the military and naval authorities attached supreme importance to their Ministers being active service officers, and they managed to conclude a gentleman's agreement with the Cabinet whereby, although, in principle, reserve officers should be eligible for ministerial office, in practice only active service men should be chosen, as hitherto.

Even so, the army authorities feared that this revision of the regulations might eventually result in the selection of the War and Navy Ministers from among civil officials. So, in 1931, they took steps to preserve the independence of the Services by the conclusion of an agreement among the members of the so-called "Army Triumvirate"—the War Minister, the Chief of the Military General Staff, and the Inspector-General of Military Education—regarding the personnel of the army. This agreement, which was confirmed by the Emperor the same year, prohibits the War Minister from disposing of the army's personnel matters without consulting the Chief of the General Staff and the Inspector-General of Military Education, although full respect is paid to the War Minister's powers as a member of the Cabinet. This precaution was taken by the military authorities in order to protect personnel matters from any possibility of political influence which they feared might be exercised through a War Minister selected from among officers on the retired list or from among civil officials.

It will thus be seen that the War and Navy Ministers have an entirely different position in the Cabinet from their colleagues. Should the policy of the Cabinet run counter to that of the naval or military authorities, it would fail unless a compromise could be found, although a check is provided upon the actions of the latter in the form of budget voting in the Diet. But any Cabinet would fall or fail to be organized if the military and naval authorities should refuse to recommend a candidate for the post of War or Navy Ministers. For example, in 1912, the Cabinet headed by Prince Saionji collapsed because it came into head-on collision with the military authorities regarding their demand for the establishment of two additional divisions; again, Count Kiyoura failed to organize a Cabinet simply because he was unable to persuade any Admiral to take office, owing to his refusal to accept the Navy's demands for large construction appropriation.

The relations between the conduct of general State affairs and the commands of the army and the navy are dealt with in the Imperial Constitution, but the interpretation of the relevant articles is very delicate and controversial. Since the conclusion of the London Naval Agreement in 1928, the political situation has been dominated by this all-important problem. The naval authorities, prompted by a desire to clarify the relations between those responsible for State affairs and the supreme command of the navy, revised the regulations of the Naval General Staff so as to distinguish clearly between affairs which concern the Ministry of the Navy and those which concern the Naval General Staff. The main purport of the new regulations is to ensure that the Minister, as a semi-civilian agency, shall have his powers as clearly defined as possible by the General Staff, representing the Emperor as Supreme Commander of the armed forces of the State. In general, it can be said that the principle has been established that it is the duty and right of the Services to decide what they want, and that it is for the Government to determine how to get it, and not to decide in advance, as they attempted to do before, that it could not be got.

The late Prince Aritomo Yamagata, who was the organizer of Japan's army, and the late Prince Hirobumi Ito, who drafted the Constitution, were responsible for the present unique position occupied by the army and navy in Japan's politics. These elder statesmen in the Meiji era introduced parliamentary government into Japan, but they did so, not merely because they had an implicit confidence in the new system, but also because they thought it wise to yield to the force of circumstances; in other words, they wanted to forestall popular agitation. It was clear that the promulgation of the Constitution would lead to parliamentary government, which in turn would result in an advance in the influence of political parties. But those elder

statesmen had no great faith in political parties, at whose activities they looked somewhat askance. They feared that the military and naval personnel might be changed for political considerations when a party government was in power. Prince Ito, it may be mentioned, later recognized the usefulness of political parties and became president of one himself, but Prince Yamagata did not change his attitude towards political parties and parliamentary government until his death. This coldness toward political parties has been traditionally cherished by the military and naval authorities.

National Defence.

National defence forms the most powerful political factor in any rising nation. When Japan bade farewell to her three-hundred-year-old exclusion policy at the behest of the European and American Powers, she was obliged, by sheer force of circumstances, to devote more than one-half of her national resources to the efficient organization of her national defence, otherwise she would have been out of the running in competition with the advanced Powers. In order to organize the national defence in the most efficient way, it became necessary to divorce the military and naval authorities from all political influence. It is thus possible to say that the Services acquired their unique position through the efforts of the two greatest Meiji leaders, Yamagata and Ito, each working in his own way, and that the main reason for this achievement was the need rapidly to strengthen and consolidate national defence for the purpose of preserving Japan from foreign encroachment.

In order to understand the spirit which animates the Services and their leaders' conception of their role in the State, it is necessary to appreciate that the Japanese army and navy are under the personal command of His Majesty the Emperor, and that their devotion to the Sovereign is complete and absolute. All armies and navies are controlled by discipline, based on the strict enforcement of commands by superior officers and obedience by lower officers and men. In the case of Japan's army and navy, however, the fundamental idea of discipline is entirely different from that in foreign countries. Commands are obeyed in Japan's fighting services, not because they are given by superior officers, but because they are issued by those officers in accordance with Imperial wishes, and accepted by the lower officers and men as the order of the Emperor himself. In other words, military and naval discipline in Japan is based on national devotion to the Emperor.

The Japanese Constitution stipulates that the Empire of Japan shall be reigned over and ruled by an unbroken line of Emperors. This is believed to be in accordance with the divine mission which the Emperor Jimmu, the first Emperor of Japan, personified in himself. It is also

believed that the Emperor and the nation are sovereigns and subjects in relationship, but father and sons in affection.

Although the army and navy remain absolutely faithful to the age-long creed of the divinity of the Emperor, and cannot allow that faith to be even apparently challenged, they have nevertheless been affected by the change or progress of the times, both political and economic, which cannot fail to influence peoples and States everywhere in the world. The effect of the change of the times on the army and navy is best revealed by tracing the revisions of the Army Service Book, which contains instructions for soldiers in the discharge of their duties. This book has been revised twice. The original, compiled and issued during the early days of the army and before the wars with China and Russia, was so detailed and so strict that the soldier was deprived of almost all personal freedom. For instance, he was required to cut his hair to a certain specified length, to place his desk at a specified distance from the window in his room, and to sit at his desk in a certain position. Liberal ideas, however, which gained strength all over the world following the termination of the European war, caused a reaction in the army—not against the creed of implicit obedience to superiors as representatives of the Emperor, but against the detailed rigidities of discipline. The troops who participated in the Siberian expedition contributed much to this reaction, wittingly or unwittingly. In consequence the Service Book was revised so as to give merely an outline of instructions for the soldiers in the discharge of their duties and to drop all detailed directions regarding their every-day behaviour. In working out the details, the soldier was required to act at his own discretion.

But changes which later occurred in popular ideas and social conditions raised the question for the army authorities as to whether it was advisable to maintain this relaxation of discipline. Events in Manchuria led to a reaction towards tightening up discipline which necessitated a second revision of the Service Book, in 1934. But these two revisions were drafted by General Masaki—the first when he was a sectional chief in the Inspectorate General of Military Education, and the second when he was Inspector-General of Military Education himself. Those who are constantly talking about " factions " in the army should note these facts. Army ideas of discipline have certainly changed from time to time. At one period the Service has been more " liberal," at another more " conservative " ; but these changes have corresponded to the influence of certain ideas which have swept over the country, and even the world, at various epochs. They have never been exclusively associated with any person or group of persons in the Services, as is proved by the fact that two quite different tendencies were catered for by one and the same person—General Masaki.

It is possible to divide the attitude of the army towards both internal discipline and national politics into three stages, and these stages are represented roughly by the most prominent War Minister at the time. The first stage was represented by the late Marshal Terauchi, who was Minister of War during and after the Russo-Japanese War (1904–5). Then came the Tanaka stage which witnessed the expedition to Siberia during the Russian revolution. The third stage was represented by General Araki, who was Minister of War during and after the Manchurian incident. But it was the times and their needs which created these stages, not the fact that Terauchi, Tanaka, or Araki happened to be the outstanding figures.

During the Terauchi stage the military authorities were engrossed in building up the army and national defence in general. The late Marshal himself organized a Cabinet, and participated in general politics; but his main concern was to promote the purely technical and professional efficiency of the Service. It cannot be said that he took no interest in politics, but he remained true to the tradition of the Samurai till his death, and what was uppermost in his mind, whether as War Minister or Premier, was the security of national defence and the professional and technical strength of the army. He also requested all soldiers to imitate the old Samurai with unswerving devotion to the Emperor—to be soldiers first and last, but never politicians. The late General Tanaka, who represented the second stage, was himself a soldier and as such he did not neglect national defence, but he was definitely interested in politics. This was during a period when democratic ideas exercised the most profound influence on our people. It did not, therefore, seem unnatural or undesirable that a soldier should become personally active in the political arena. On the other hand, if the Tanaka period was one in which certain people took a practical interest in politics, with the army as their stepping-stone, the present age which set in with the Manchurian incident is one in which the combined will and force of the army have begun to have full play on the entire political front. General Araki was placed at the head of the army at the beginning of this memorable period.

This period has often been associated with the ascendancy of Fascism in Italy and of the Nazi movement in Germany. It is true that discussion has gone on as to the advisability or otherwise of activity by the military and naval authorities on the whole political front from the viewpoint of the State, as well as of the army and navy. But this is nothing but a manifestation of the tendency of the times all over the world. General Araki was a favourite of the times, and there is little doubt that he was influenced by Fascist ideas; but he was a soldier of the old Samurai type, and temperamentally not ambitious to cut a

political figure, which, in fact, was responsible for his early resignation of the post of War Minister.

This touches on the question of army unity, which has been brought to the fore by the retirement of General Masaki from the post of Inspector General of Military Education, just before the extensive shuffle in military posts in August, and the assassination of Lieutenant-General Nagata, Director of the Military Affairs Department in the War Ministry by his subordinate Lieutenant-Colonel Aizawa. What was the reason for General Masaki's retirement ? Broadly speaking, it can be attributed to his objection to the rather severe treatment accorded to certain officers who were known to be more influenced than others by the Fascist tendency of the times. But that was a personal view, and the fact that General Masaki who had always been preoccupied with ideological movements in the army, held this view, proves nothing except that the ideas of the officers in question could be regarded as normal and in no sense disloyal. It certainly does not prove the existence of " factions " in the army, Fascists or otherwise. As to the Nagata murder, it seems that Lieutenant-Colonel Aizawa had been reading a certain document prepared by certain officers in the army which purported to describe the part that Lieutenant-General Nagata had played in planning the army reliefs and promotions which, as has been said, were unfavourable to the officers with Fascist or semi-Fascist ideas. This angered him so that he struck the fatal blow. But again, this fact is no evidence of any faction in the army. Lieutenant-Colonel Aizawa represented nobody but himself in taking such an action.

It thus emerges that what has happened is that certain ideas have found their way into the army, as they have found their way into all sections of the national life. These ideas have influenced certain officers more than others, and these officers have given expression to them and striven to make them prevail among their colleagues. To a certain extent they have succeeded, but only to a certain extent. The main point is that neither their relative success nor their relative failure can be said to have upset the unity of the army, which remains as always devoted essentially to its professional tasks and firm in its basic belief in its mission to work out the destiny of the nation.

[NOTE.—*This article was written before the events of 26th February, 1936, when some 3,000 officers and men who were under orders for Manchukuo assassinated a number of statesmen. Admiral Okada, Prime Minister, only escaped because his brother-in-law was mistaken for him and murdered. The motive for this political outrage was alleged to be the removal of those who were 'traitors' to nationalist military aims. The rebels capitulated on the 29th February, and it was reported that a number of the officers had committed hara-kiri.*—EDITOR.]

THE LOWER DECK, PAST AND PRESENT

By REAR-ADMIRAL J. F. SOMERVILLE, C.B., D.S.O.

On Wednesday, 30th October, 1945.

VICE-ADMIRAL SIR M. E. DUNBAR-NASMITH, V.C., K.C.B., in the Chair.

LECTURE

PART II[1]

THE LOWER DECK IN MODERN TIMES

AN idea of what conditions were like on the Lower Deck in the "nineties" can be gleaned from Mr. Lionel Yexley's books.

One of the early grievances which came to his notice was that of hospital stoppages, whereby 10d. a day was stopped from the men's pay if the latter was 1s. 7d. per diem or above, and 8d. if under. Yexley complains bitterly of the ships' police, especially in large ships. At that time the police were frequently rated up from able seamen and were apparently not selected with proper consideration for the powers they would have to exercise in their new rate. Corruption, especially in the depot ships, was rampant. The men did not object to the system of bribery which obtained, since from their point of view it enabled them to obtain extra leave, to avoid purchasing clothes to complete their kits, and to avoid many other inconveniences prescribed by the regulations. It is stated that Ships' Stewards as well as Masters-at-Arms waxed rich, and by the time they became due for pension were men of property and substance. It is fair to say that the "Excellent," Gunnery School, stood out in comparison with the rest of the Navy in respect of discipline, smartness, and maintaining a high standard generally.

Yexley has a good deal to say about ships' canteens and canteen administration. When he first entered the Service there were no recognized canteens, and it was the custom of the men to purchase such additional articles of food as they required and to stow these as best

[1] PART I of this Lecture appeared in the JOURNAL for February, 1936.

they could in their messes, with the result that, in heavy weather, they suffered severe loss due to articles being ruined by salt water or improper stowage. The introduction of the canteen tenant system affected little real improvement; the members of the Canteen Committee, elected by the Lower Deck, very often regarded this as an opportunity to benefit themselves and exercised little or no proper control over the activities of the canteen tenant. The Commander or First Lieutenant also looked to the canteen tenant to supply additional cleaning gear. Unnecessarily high prices were charged, and the quality of provisions and other articles supplied left a great deal to be desired.

I have not said much about uniform so far, but on the 30th January 1857, uniform regulations were first issued. For a long time previously men had been dressed more or less alike, since the slops issued were of a standard pattern. Captains, however, had their own ideas regarding the uniform worn by their ship's company, and consequently clothes that served in one ship were not suitable for another, and the changes required involved the men in heavy expenses. The introduction of these regulations was certainly long overdue.

Yexley states that a particular grievance was the introduction of new uniform regulations in 1890, which many officers construed as necessitating a rigid adherence to standard measurements. In certain ships and in the depots men could only avoid being put to the expense of replacing perfectly serviceable, but not strictly standard, clothing by bribing the ship's police or petty officers responsible for mustering bags. There are probably many officers here to-day who recollect that period and who will recall the vexatious employment of the tape measure by a number of Commanding Officers.

With regard to victualling, little substantial change was made until the Login Committee of 1907 fundamentally altered the whole system. The "savings" system, that is the privilege of taking an allowance of money in lieu of part of the standard rations, had grown to such an extent that, judging by the figures, it appeared the men were obtaining more food from outside sources than they took up from the authorized ration. For example, in 1904 the total savings paid amounted to £721,356. Since the men were only allowed two-thirds of the issuing price of the rations they took up, and as they were not compelled to spend their savings on food, there was no guarantee that they were either adequately or properly fed. They did, however, obtain a certain amount of variety in their diet.

The Login Committee, which made the first serious attempt in naval history to study the problem of feeding the sailor on scientific and

practical lines, instituted what is known as the Standard Ration System. This comprised a standard ration, consisting of ordinary daily requirements of suitable articles of food, and a messing allowance, to be spent by the sailor in supplementing and varying his diet. The Committee also recommended that ships' canteens should come under proper control, and only be let to responsible tenants under contract and Admiralty supervision. This step was strongly opposed by a small section of men on the lower deck who had enjoyed privileges by serving on Canteen Committees—these privileges, as I have stated, being gained at the expense of their messmates.

After the outbreak of the War, it was clear that no canteen system run by private enterprise could expect to meet requirements either in the Navy or the other Services, and this led to the formation of the Navy and Army Canteen Board under Government control which, on the conclusion of the War, was re-formed as the Navy, Army, and Air Force Institute, and which now carries out practically all the canteen services for ships and establishments at home and abroad.

The Login Committee also recommended a trial of the general messing system. In this system the Accountant Officer acts as a caterer for the whole ship's company; meals are prepared and cooked by a staff under his orders, and a weekly menu is made out which endeavours to cater as far as possible for the average taste of all concerned. The system was first tried in H.M.S. " Dreadnought " in November, 1907, and extended to one or two ships in the Training Squadron. In the " Dreadnought " the services of a Commissary Steward were obtained from the Union Castle Line to assist the Accountant Officer in running the system. These trials did not prove entirely successful, chiefly owing to faulty arrangements for preparing and cooking the food, and the ordinary system was reverted to in the ships concerned. In 1909, the general messing system was started for stokers under training at Chatham and Portsmouth and, in 1910, authority was given for this to be extended to other ratings of the naval barracks at Chatham and Portsmouth, at the option of the men. By 1912 it was established at all three depots and had proved a success, but it was not until 1919 that the system was regarded as officially in force at the three depots and the boys' training establishments. Since 1919, the general messing system has been applied to all ships capable of being fitted with the necessary preparing rooms and cooking arrangements, but it still has its critics, since, as is only natural, the older ratings prefer quality and variety to quantity, whereas the latter is of more importance to younger men. On the whole it can be said that the system has proved very successful.

About 1912, there was a good deal of discontent on the lower deck,

mainly in connection with pay. For many years the basic pay had remained stationary, and only very few and small increases of pay had been granted. There had been considerable and expensive improvements in other directions, more especially in regard to living conditions, messing, mess gear, canteens, and clothing, and the allowance for leave had also been increased. These improvements were no doubt appreciated by the men, but the low rate of pay forced them to maintain a relatively low standard of living in their homes. An article entitled "Naval Discontents" appeared in the October issue of the *English Review* in 1911. In this article it was stated that, whilst the country did not grudge money on ships which could be seen and paraded before the public eye and, more especially, before foreigners, yet on the other hand it did grudge money on improvements for the welfare of the men, which were not evident and therefore provided no advertisement of British naval might. It was alleged that the poor pay accounted for undue incidence of misconduct on the part of sailors' wives, and that the Admiralty drove hard bargains with bound men and exploited the conditions of the labour market. There was also criticism of the officers. In the same year, the *Naval and Military Record* published letters from correspondents which suggested that the discipline enforced by a number of officers was irksome and out of date, complaint being made that "a sailor joins as a boy and is treated as a boy throughout his career." The Marines in particular complained that the punishment meted out to them afloat was approximately twelve times as much as that inflicted on shore.

For some years prior to 1912, a document known as the Naval Magna Charta was issued anonymously and found its way into the hands of many Members of Parliament and the Press. This document contained a number of requests, which included the following: the Lower Deck should be granted the privilege of forwarding petitions to the Admiralty at stated periods; a 20 per cent. increase of wages should be granted to all lower deck ratings; pensions should be increased; petty officers should only be disrated after trial by court martial; free kit should not only be issued on joining but maintained for all naval ratings; and certain other requests of a more or less minor character. The majority of the grievances which occasioned these requests were subsequently adjusted. In particular, a substantial increase in pay resulted from the recommendations of the Jerram Committee of 1919, when the pay of all ratings was practically doubled; whilst, with a view to providing adequate channels for representation of grievances, the Committee recommended the institution of Welfare Committees and, in 1919, the first Welfare Committee met.

In 1922 Welfare Conferences were established, and were held each alternate year from 1922 to 1932. Although it appeared at first that these Welfare Conferences might serve a useful purpose, it became clear that in course of time control tended to be concentrated in the hands of representatives of various Lower Deck Benevolent Societies at the home ports, and, so far as the Lower Deck was concerned, the prestige of the Welfare Conferences diminished. Apart from this, the Welfare Conference tended to prevent and supplant the representation of grievances by men through their officers, and for these reasons their continuation was no longer considered desirable. Steady efforts have been made to induce the men of the Lower Deck to overcome their reluctance to represent grievances directly through their officers. In the old days a man certainly took a serious risk if he stated a grievance, since it was, unfortunately, too often the fact that this grievance was registered as frivolous, and for making a frivolous complaint a man could be, and was, punished. In spite of Admiralty pronouncements on the subject, and the efforts of officers ashore and afloat, this old fear that a man may be penalized if he states a grievance still exists on the lower deck. I think however it is fair to say that this is dying down, and we can look forward to the time when the men will believe that there is really no "catch" in the organization provided by the Admiralty for stating and adjusting grievances.

THE INVERGORDON MUTINY

I will now turn to 1931, the year of the Invergordon Mutiny. Needless to say, I would much rather avoid all reference to that most regrettable event, but to do so would be to neglect an obvious duty. The grievance which occasioned the Invergordon mutiny was a pay grievance and I will endeavour to explain how this arose.

In 1923 the Anderson Committee on the pay of State servants reported that the 1919 naval rates of pay were too high by comparison with the pay given to other State servants. Taking the Government index figure of a working-man's budget expressed in percentage increases since July, 1914, the average cost of living figure was 150 in 1920, 130 in 1921 but falling to 100 at the end of that year, and during 1923 to 1925 approximately 70. These decreases in the cost of living had not been applied to the 1919 basic rates of pay or to non-substantive pay—that is specialist pay, but they had been applied to certain allowances; for example Victualling Allowance had been reduced from 1s. 11d. to 1s. 5½d., Leave Allowance from 3s. 6d. to 2s. 8d., Marriage Allowance for wife and one child from 19s. a week to 13s. 6d., Kit Upkeep Allowance

mainly in connection with pay. For many years the basic pay had remained stationary, and only very few and small increases of pay had been granted. There had been considerable and expensive improvements in other directions, more especially in regard to living conditions, messing, mess gear, canteens, and clothing, and the allowance for leave had also been increased. These improvements were no doubt appreciated by the men, but the low rate of pay forced them to maintain a relatively low standard of living in their homes. An article entitled "Naval Discontents" appeared in the October issue of the *English Review* in 1911. In this article it was stated that, whilst the country did not grudge money on ships which could be seen and paraded before the public eye and, more especially, before foreigners, yet on the other hand it did grudge money on improvements for the welfare of the men, which were not evident and therefore provided no advertisement of British naval might. It was alleged that the poor pay accounted for undue incidence of misconduct on the part of sailors' wives, and that the Admiralty drove hard bargains with bound men and exploited the conditions of the labour market. There was also criticism of the officers. In the same year, the *Naval and Military Record* published letters from correspondents which suggested that the discipline enforced by a number of officers was irksome and out of date, complaint being made that "a sailor joins as a boy and is treated as a boy throughout his career." The Marines in particular complained that the punishment meted out to them afloat was approximately twelve times as much as that inflicted on shore.

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for a man dressed as seaman from £13 to £8 18s. od. As a result of the Anderson Committee's report, the 1925 rates were introduced for all men entered in and after October of that year. By 1931 still further reductions had been made in allowances to accord with the fall in the cost of living which, for that year, averaged about 49. The situation, therefore, was that the majority of men in the Service were still on the 1919 rates but had sustained a reduction in allowances, whilst a relatively small proportion of the personnel, consisting of young men, were on the lower 1925 rate.

Apart from this question of pay there had been progressive improvements since 1920 in regard to leave, messing accommodation, and other matters which concerned the welfare of the lower deck; but advancement was slow, and becoming even slower as a result of the substantial reductions in the numbers of personnel which took place between 1928 and 1933 when the strength of the Navy was reduced from 101,800 to 90,300.

There had been a distinct post-War tendency to concentrate on technical development, with the result that brains and specialist efficiency received, perhaps, more consideration than personality and power of command when selection was made of officers and men for advancement. In the case of officers, the reduction of the fleet caused long breaks between the sea service periods of Flag Officers, Captains, and Commanders, and in consequence these officers were not so well-known to the Lower Deck as had been the case in former days. Generally speaking, there was no relaxation of discipline or any appreciable discontent, either in the fleet as a whole or in any particular section of the fleet. There had been, in fact, a striking and progressive decrease in punishment during the last twenty-nine years. Summary punishments had fallen from 98 per cent. in 1912 to 49 per cent. in 1931, and courts martial from 127 to 13. The Communist and subversive element, from which no large body of men is ever entirely free, was very small indeed, but probably reflected the activity shown by their parent bodies in times of national difficulty; it was not a factor of any importance in provoking the mutiny.

The May Committee on National Expenditure, appointed "to make recommendations forthwith for effecting all possible reductions in the national expenditure on supply services," presented their report in the summer of 1931. In this report the Committee recommended that, so far as the Navy was concerned, all ratings should be reduced to the 1925 rates. This recommendation caused considerable apprehension on the lower deck but was not given much serious consideration by the

officers of the fleet. The latter felt assured that this proposal would never be carried into effect. By September, however, it was clear that practically everyone in the country would be called upon for some sacrifice in order to restore the national credit. On the lower deck it was assumed that this would take the shape of a flat-rate cut of the order of 10 or even 12 per cent. on all pay. The matter was discussed quite openly by the men in the presence of their officers during the passage of the Atlantic Fleet to Invergordon from their home ports. There was even good-humoured banter as to how budgets should be adjusted. In this connection it should be borne in mind that the pay and financial credit enjoyed by the men on the 1919 rates had enabled them to take full advantage of the hire-purchase system, and consequently any failure to maintain weekly allotments would involve considerable sacrifices, such as furniture or other effects being forfeited unless payments were continued. Rents at the home ports had not fallen proportionately with the cost of living.

Promulgation of the cuts to be applied, namely those recommended by the May Committee, did not reach the fleet simultaneously. Wild rumours permeated many ships, and the men were consequently in a highly unsettled frame of mind before the actual details of the cuts were received. In spite of the apprehension caused by the Committee's report, the men did not believe that the 1925 rates would be universally applied and that the lower paid ratings would suffer the heavier penalties. A panic seized them, they imagined that the homes in which they took such pride would inevitably be broken up and their families possibly left destitute. The men informed their officers that they felt assured the latter would be quite unable to secure redress of any grievance connected with pay. The idea was firmly rooted in their minds that matters of pay were adjusted by civilians at the Admiralty, and that months or even years might elapse before pay grievances would be adjusted. The suggestion that they should register their protest by "downing tools" fell on fertile ground. It was a recognized and accepted action in labour disputes ashore and had been largely employed during the many strikes which occurred after the War. I will not discuss the actual happenings at Invergordon since these are well known. As is also well known the cuts were eventually reduced to what amounted, generally speaking, to a flat cut of 10 per cent. and, owing to improvement of the national finances, this cut was fully restored in July, 1935.

I would like, however, to show the points of similarity and dissimilarity between this mutiny and the mutiny at Spithead. At both Spithead and Invergordon the prime grievance was pay, and the men disliked and disclaimed the suggestion that they were in a state of

mutiny. The mutiny broke out on the fleet being ordered to sea, it being known both at Spithead and Invergordon when the order to weigh was given that serious grievances existed which required adjustment. At Spithead, the mutiny was only quelled after members of the Board had visited the fleet and come to terms with the men. At Invergordon, the Board refused to make any adjustment of the grievances until the men returned to duty. At Spithead, the sympathy of the public was with the men to the extent that it was appreciated the latter had taken steps to represent their grievances before breaking out into mutiny, and had cause to believe that their representations had been ignored. At Invergordon, public opinion was against the men. The reason for this is not far to seek: British justice has a world-wide reputation, and if any section of the British public tries to take the law into its own hands and shows by its action an unreasonable lack of faith in British justice, then it is a foregone conclusion that it will be condemned by public opinion. It was because the men at Invergordon gave British justice no opportunity to act and to redress a grievance, which was recognized and adjusted subsequently, that they were condemned by public opinion. As a nation we are not much given to analysing our national characteristics, and the Lower Deck is no exception in this respect, but it is on the lower deck that you will find the strongest supporters of "fair play" and "playing the game" according to the rules. If, consciously or unconsciously, these principles of national conduct are not observed, you may be sure that, in due course, the default will become a matter for sincere regret on the part of those concerned.

Since Invergordon, much has been done to ensure that any possible reactions on the domestic budgets of the men which may result from alterations in pay and allowances, are fully investigated before being applied. In particular, the Personal Services Department has been established at the Admiralty and all matters which may have any direct connection with, or reaction on, the welfare of the men are referred to this department for consideration. The procedure for representation of grievances by men through their officers has also been simplified but, as I have already stated, old prejudices die hard and the Lower Deck is still inclined to display some lack of confidence in the machinery now available for this purpose.

Many men on the lower deck believe that matters affecting personnel are dealt with at the Admiralty by two sections—a sympathetic body of naval officers and a hard-hearted, regulation-bound body of civil servants. Those of us who have served at the Admiralty know that this is very far from being the case. It is my experience that our civil service colleagues are the first to draw attention to hardships or in-

equalities which may arise as the result of introducing some new order or regulation, and, if I may say so with discretion, it is to them we turn for advice as to how financial pills should be gilded before being presented to the Treasury. Mention of that august Department reminds me that, as at Spithead, so in the present day, few men on the lower deck realize that it is the Treasury acting for the Government, and not the Admiralty, who control the strings of the purse that pays the Navy. When Their Lordships of the Admiralty have occasion to regret that some request in connection with additional pay or allowances cannot be granted, it can usually be assumed that this is but an echo of a ruling by Their Lordships of the Treasury, whose duty it is to weigh the claims of not one but all services under the Government.

PRESENT DAY

Turning to the immediate present, it has been stated in the Press that the Navy of to-day is not a popular service. Certain aspects of service must always be unpopular, for example foreign service in the case of married men. The stagnation in advancement which occurred during the years of reduction, to which I have already alluded, has been an element of unpopularity in the past, but I trust will not arise in the future. The best indication of popularity is that afforded by recruiting figures and the figures for re-engagement—that is the number of men who elect to remain on for another ten years after completing twelve years man's service. 51,777 boys and youths applied to enter the Navy last year, and 6,814 were accepted: these figures speak for themselves. For re-engagement the average figure is 64 per cent., which can hardly be considered as unsatisfactory having regard to the fact that a high percentage of men who re-engage are married.

A survey of conditions on the lower deck would not be complete without some reference to the prospects of advancement to Warrant and Commissioned rank. Prior to 1900, Warrant rank included Gunners, Boatswains, Signal Boatswains, Carpenters, Artificer Engineers, and Head Schoolmasters. Head Wardmasters were added in 1900, and since then Warrant rank has been opened to the Ships' Police, Ordnance, Electrical, and Accountant Branches. The percentage of Warrant officers to ratings in the various branches varies from approximately 2 per cent. to 5 per cent.

The Mate Scheme—that is the scheme whereby men from the Lower Deck were advanced to the rank of Mate and in due course joined the Lieutenants' list, was started in 1912. The title of Sub-Lieutenant was substituted for Mate in 1931, with a view to ensuring that officers pro-

moted from the Lower Deck should have equal opportunities and status with those who entered as Cadets. At the present time 7 per cent. of all commissioned executive and engineer officers, of or below the rank of Commander, are officers who have been promoted from the Lower Deck under the 1912 Mate Scheme, or the 1931 Scheme which replaces the latter.

I have made little or no reference so far to the domestic welfare of the men—that is, the welfare of their families. In years gone by, little or no official notice was taken of the sailor's wife and family. Possibly the view was that if, as alleged, the sailor had a wife in every port, it would be invidious to single out any one as the subject for official consideration. That is now no longer the case. During the War, families were officially recognized by the granting of separation allowance which eventually became marriage allowance. Another beneficial legacy of the War was the conversion of the Grand Fleet Fund into that great institution the Royal Naval Benevolent Trust. This Trust, which is controlled by a committee of serving and retired officers, and men from the lower deck, and administered by men of the Lower Deck, carries out a really admirable work in assisting the families and dependents of serving and ex-Service men in times of difficulty or distress. Those of you who have had an opportunity to study at first hand the work and methods of the Trust will, I feel sure, agree with me that the prompt and equitable manner in which assistance is furnished deserves the highest praise. There are a number of other associations, societies, and funds which have proved of great value in promoting the welfare of the Lower Deck, but the Royal Naval Benevolent Trust is the largest and most important organization we have at our disposal for this purpose.

As a further means of ensuring that domestic difficulties shall receive prompt attention, and with a view to extending the existing official organization for the care of the children, the Admiralty have recently established family welfare sections at each of the three Naval Ports. Included in these sections are ladies with considerable experience of Lower Deck family welfare matters; it is hoped that these welfare sections will prove of real benefit in dealing with difficulties which inevitably arise when husbands on foreign service are separated from their families for relatively long periods, and consequently are unable to deal personally with sudden domestic emergencies.

I would also like to mention the housing experiment which is being carried out at Portsmouth. I have already referred to the relatively high rents which obtain at some of the naval ports, due primarily to

the well known law of supply and demand. With a view to providing reasonable accommodation at a reasonable rent a housing society, known as the Victory Housing Society, was established at Portsmouth and financed by the Canteen funds of the Royal Naval Barracks. As a result 114 houses have been built on a site near the Tipnor rifle range and are now (October, 1935) all occupied. It is noteworthy and typical that the Lower Deck representatives on the housing committee voted in favour of priority being given to the lower paid men with the largest families; none of the representatives in question was included in this category, and they thus voluntarily excluded themselves from any prospect of participation in the benefits which would accrue.

I will conclude my lecture with the final observation that a study of the history of naval personnel, and an acquaintance with the Lower Deck of to-day, shows there has been little or no change in the character of British seamen, and by seamen I refer to all who go down to the sea in ships. An unquenchable sense of humour, coupled with a good nature and tolerance that are proverbial, are perhaps the chief factors in producing that curious paradox, namely that the British seaman is at his very best when danger, discomfort, and difficulties are at their very worst.

DISCUSSION

ADMIRAL SIR E. F. INGLEFIELD: I understand that flogging was not one of the grievances which caused the mutinies at Spithead and the Nore. As evidence of the attitude of seamen themselves towards this punishment I may quote the case of the crew of Lord Yarborough's yacht "Falcon." Built in 1824, she was a full-rigged ship of 351 tons and carried 22 guns on her main deck,—there is a picture of her in the R.Y.S. Castle. In their *Memorials of the Royal Yacht Squadron*, Montague Guest and W. B. Boulton mention that the fifty-four "choice" hands voluntarily placed themselves under martial discipline: "The honest tars are so well convinced of the impossibility of being properly managed without due sense of the cat-o'-nine tails, that they voluntarily consented to its lawful application on board, and 'ere the "Falcon" left Plymouth Sound, all hands cordially signed a paper setting forth the usefulness of a sound flogging in cases of extremity, and their perfect willingness to undergo the experiment whenever deemed necessary for the preservation of good order."

REAR-ADMIRAL L. OLIPHANT: We still have to have a specially low height standard for Greenwich boys to enter the Royal Navy. May I ask the Lecturer if he can give me any reason why sailors beget small children? One Prize Day at the Greenwich School I put it to Sir Oswyn Murray, who many years before had been Director of Victualling, that the responsibility was on him for having fed the men so badly that their children were under-sized. He indignantly denied it! But the fact remains that these boys are, generally speaking, from half an inch to an inch below the average height standard, and apparently had been so from the year 1862 until the School left Greenwich in 1933. It will be of interest to see whether the East Coast climate at Holbrook has any effect on this question.

THE LECTURER:

I am afraid I cannot answer the question as to why sailors have small children. I will certainly take up your suggestion—that the Director of Victualling is to blame, and if I get any result I will let you know!

THE CHAIRMAN:

Since the early part of the century the general race to keep abreast of the times which has taken place in every section of the community has, naturally, not left the Navy untouched, and the seaman has had of necessity to turn his attention to many more intricate arts than propelling a ship by sails and aiming a gun by eye. Those broad shoulders and great muscles of the stoker are not so familiar now that coal has given place to oil. It was those shoulders and muscles which were a source of great pride to us in the Navy, for it was upon them that the mobility of the Navy depended. But the personnel has advanced with the times, and there is now an ever-increasing scope for technical and scientific development on the lower deck. I have been very much impressed recently by the increased interest which the men take in the various ports which they visit, from an historical point of view. I think they take much more advantage of the opportunities of travel afforded them. Our recruiting stations would be kept very busy if the majority of the rising generation thoroughly appreciated how those opportunities, combined with service to their country, were open to them.

I know I am echoing your wishes in offering to the Lecturer our very sincere thanks for his extremely interesting and instructive lecture, and for the pains which he has obviously taken in studying back records at the Admiralty in order to secure the information which he has given us.

The customary votes of thanks to the Lecture and Chairman were carried by acclamation.

STRATEGIC MOVEMENT OVER DAMAGED RAILWAYS IN 1914

By Major C. S. Napier, R.E.

TWO articles on strategic movement by rail in 1914 appeared in the R.U.S.I. Journal for February and May, 1935. These were devoted to the great initial strategic concentrations and to strategic movement during operations, notably on the German Eastern front. The circumstances examined were those of an intact railway system at the disposal of the Higher Command; but a reference was made to the great reduction of capacity which results from systematic damage. The present article is devoted to demolitions, repair, and working over damaged railways, with especial reference to the opening campaign in the West. It is principally based on the first Railway Volume of the German Official History.

The strength of the German railway organization lay not only in the technical efficiency of its personnel, but also in its centralized control of repair and operating, and in the close liaison that existed at every level between these two departments. Under the Director-General of Railways (*Chef des Feldeisenbahnwesens*), whose charge embraced all transportation for war purposes, were two, later three, Military Railway Directorates (M.E.D. 1, 2, and 3) on the Western Front. These controlled at first some 25,000 railway personnel, including twenty-one operating and fifty construction companies. Of the latter, a number, mobilizing early, crossed the frontier with the leading troops for technical reconnaissance, to seize important bridges, and to initiate immediate repairs. Work was pushed forward unremittingly, often in close proximity to the enemy; and as successive sections of line were brought into use, they were taken over by the operating companies. The German advance was, however, so rapid that assistance had soon to be sought from civil industry for major bridge repairs; while additional construction, operating, workshop, and telegraph units were formed from State railway personnel and grouped in operating districts under Line Commissions (L.Ks. Liège, Brussels, etc.) on the model of the home system, in order to free the military railway personnel in rearward areas. By

RAILWAYS OPEN 9 SEPT. 1914
ANTWERP
BRUSSELS
LILLE
CALAIS
HAZEBROUCK
ABBEVILLE
EU
AMIENS
ABANCOURT
SERQUEUX
ROUEN
BEAUVAIS
PONTOISE
PARIS
CREIL
CREPY
ROYE
NOYON
COMPIÈGNE
TERGNIER
LAON
ST QUENTIN
BUSIGNY
HIRSON
CAMBRAI
DOUAI
ARRAS
VALENCIENNES
MAUBEUGE
MONS
LÖWEN
NAMUR
CHARLEROI
LIÈGE
AACHEN
MALMÉDY
GEROLSTEIN
MARLOIE
PALISEUL
CHARLEVILLE
SEDAN
RETHEL
VOUZIERS
RHEIMS
MONTMÉDY
LONGUYON
ARLON
VERDUN
TRIER
LUXEMBOURG
THIONVILLE
METZ
SAARBURG
Aisne
River
Scale
50
100 MILES
0
Only double lines are shown
Open
Not open } 9 Sept.
X Major demolitions

the end of November over 50,000 military and civil personnel were employed on the railways in occupied territory.

The Damage to the French and Belgian Railways and Progress of Repairs

The strategic surprise achieved by the speed, weight, and range of the German movement through Belgium was reflected in the negligible damage to the railways lying in the path of the outer German armies (see Sketch Map). It is one of the mysteries of 1914 how the Germans were able to seize the twenty tunnels on the Aachen-Liège main line intact. The Belgians had piled up seventeen locomotives in Nasproué Tunnel, but no charges were blown; and German troop trains were running into Liège over the Meuse bridge even before all the forts had fallen. The speed of the German advance through Belgium appears to have prevented more than unimportant damage to track and telegraph lines. But the story is the same even in Northern France. No major engineering works were blown on the important Brussels–Mons–Valenciennes–Cambrai main line; only technical equipment and locomotive water points were damaged. The first major railway demolitions found by von Kluck's army were South of St. Quentin—four bridges over the Oise and Crozat Canal.

The situation was very different nearer to the pivot of the German wheel. Though more might have been done in the Belgian Ardennes, the French demolitions were extremely thorough. The tunnels at Longuyon, Montmédy, and Charleville were blown: so were all the bridges over the Meuse between Namur and Sedan. Between the Meuse and Sambre almost all the major works were thoroughly demolished, in particular the viaducts round Hirson, the tunnels South of Liart, and the Aisne crossings. The fortresses of Namur and Maubeuge blocked important lines, and when they fell (on 24th August and 7th September) the bridges over the Meuse and Sambre were found to have been destroyed.

To sum up, demolitions had, both in principle and in practice, been limited to the destruction of major engineering works and to the wrecking of technical equipment and locomotive water supplies; track was untouched. In the centre, on the Thionville–Sedan main line and between the Meuse and Sambre, the damage was serious; but behind the extreme right wing, where the Germans had achieved strategic surprise, the railways could be brought into operation at a speed which far exceeded expectation.

The sketch map shows the situation on 9th September—the crisis of the Marne. Note in particular the claw reaching from Germany

right down to Roye and Compiègne behind the German right. Not only were von Kluck's five Corps and three cavalry divisions fed and kept in ammunition by this line during the battle of the Ourcq, but troop trains unloaded at Compiègne the very day of opening for traffic. No other through double-line routes were open at this date; only short lengths and single lines of too limited capacity for any but supply traffic. The situation gradually improved as repairs, undertaken in accordance with a priority laid down at O.H.K., were carried through. The Charleroi-Maubeuge–Busigny line was opened 23rd September, affording welcome relief to the Mons–Valenciennes–Cambrai artery; and the repair of Namur bridge on 30th September linked up the important Luxemburg–Marloie–Namur lateral. Meanwhile, on 15th September, track, of sorts, was through from Thionville to Rethel on the Aisne; on 6th October, with the repair of the Charleville tunnel and bridges, through to Hirson; and on 15th October, from Liart to Laon, hitherto reached only via St. Quentin. By this last date, work in the Lille region and Western Belgium was taking precedence of all else. Repairs round Hirson were not completed till 11th November, and on the Namur–Charleville line had to be abandoned.

Without entering upon technical detail, it is interesting to note the delay imposed by different types of major demolition. These are set out in the following table.

Type of Demolition.	*Approx. Time required for Repair.*	*Examples.*
Bridges.		
(*a*) Where hasty bridging was possible with short or stock spans.	7–10 days.	Upper Meuse, Sambre, Oise, Aisne.
(*b*) More difficult—high bridges and larger spans.	3 weeks.	Lower Meuse.
Viaducts (brick).	6 weeks.	Fourmies (deviation and low level bridge): Blangy, Origny, Ohis (steel trestles).
Tunnels.		
(*a*) Where deviation or opening up from above was possible.	3 weeks.	Trois Ponts and Montmédy (deviations): Charleville and Somme-Py (opening up).
(*b*) Where (single line) gallery had to be driven through.	6 weeks.	Longuyon, Liart.

This table may be taken as generally valid for flat and hilly, but not mountainous, country; and for the type of damage done in Northern France, i.e., thorough demolition of the structure itself, but not of its approaches.

In all cases, the first thing was to get a single track through as fast as possible. This implied, of course, a measure of delay to double-line traffic, accentuated in the case of deviations by steep gradients and sharp curves. In addition to bridge repairs, telegraph and telephone lines had to be put in order, signalling installations and locomotive water supplies restored. Technical damage of this nature reacted at once on operating efficiency; but, owing to the great extent of the railway network in occupied territory, work could only progress comparatively slowly. In particular, the want was felt of specialized technical units and of means, held ready in peace, for opening up temporary water supplies. The provision of rolling stock also presented some difficulty. Very little was captured in the opening weeks of the campaign; but when ultimately gathered in at Antwerp, Ghent, and Ostend, the quantities were so large (over 2,300 locomotives and more than 110,000 wagons—many damaged) as to cause serious congestion.

Operating in occupied territory contrasted sadly with the smooth efficiency of the home system. The personnel were strange to the road and to the foreign technical equipment; while the difficulties natural to working more or less damaged railways were aggravated, especially in Belgium, by line capacity and station lay-outs falling far short of the German standard. In particular, the through running of long military trains was hampered by sharp curves and gradients,[1] by short loops and sidings, and by lengths of defective permanent way; station work was retarded by the hand working of points and signals, and by bad lighting, and control of movement was extremely difficult for lack of telegraph and telephone lines. In consequence, engine failures (from bad Belgian coal), derailments, and occasional collisions were unavoidable; but they caused chronic delay, especially on the congested Aachen–Liège main line. To these difficulties inherent in the machinery of movement were added others. Trains kept under load and slow unloading by the troops—from a natural aversion to dumping ammunition and supplies during a war of movement—increased the congestion at railheads, already burdened in excess of their limited clearance facilities. Matters would have been worse but for constant watchfulness on the part of the

[1] On the 1 in 30 climb out of Liège two puller and two pusher locomotives were employed on full-length trains. Troop trains were maintained at the German standard 110 axles in occupied territory, but all maintenance traffic was reduced to 80 axles. Cf. the French 100 axles.

Director-General of Railways, who did not hesitate to exercise his authority towards a proper co-ordination of all L. of C. services and to keep demand within the capacity of the railways.

The difficulty of maintaining the advancing armies was indeed very great, especially in the centre. For instance, when the battle of the Marne opened, the fighting formations of the Second Army were, owing to the breaches round Hirson, ninety miles beyond railhead. At this period the Fourth Army enjoyed a supply line which ran as follows—from standard gauge railhead at Paliseul, narrow gauge to Balan: thence mechanical transport across the Meuse to Sedan; thence standard gauge (a shuttle service) to Raucourt; thence narrow gauge to Vouziers. This complicated chain handled some 300 tons a day. Fortunately for the centre group of armies local production went far towards meeting their more urgent needs. The maintenance problem naturally became easier with the steady progress of repairs and, incidentally, with the withdrawal from the Marne. The gradual extension of the right wing to the sea brought into service the railway network in Western Belgium, which was practically undamaged. Interruptions to supply no longer sprang from failures of equipment, but from a new cause—the large scale troop moves ordered by O.H.L.

The Race to the Sea

The critical sequence of operations known as the Marne, the Aisne, and the "Race to the Sea," exemplify with dramatic force the close interplay between strategy and transportation. The manœuvre of the Marne derived essentially from the strategic freedom afforded by an intact railway system, and one which favoured in particular reinforcement of the Allied left wing in front of the great railway nexus, Paris. During the period 25th August to 6th September lateral movement from the right wing totalled 501 trains, the greater part to Maunoury's Sixth Army north of Paris. Meanwhile O.H.L. was virtually deprived of all lateral communication. The slender railway system in service beyond the German frontier was burdened to full capacity with the maintenance of the advancing armies. The IXth Reserve Corps (112 trains) from Schleswig-Holstein was, indeed, detrained in Eastern Belgium during the period 24th to 27th August, but not without serious interference to supply traffic. Had von Moltke wished at this period to strengthen his outer wing, his only means, without interminable marching, would have been to reinforce the centre from railheads in the Thionville area and side-step formations to the right. Measures of this sort, however, were far from von Moltke's mind: the two Corps released by the fall of Namur withdrew to German soil and were railed (276 trains, 30th August

to 3rd September) from entraining points in the Aachen–Malmédy region to the Eastern Front.

The battle of the Marne imposed a new strategy on O.H.L.; and from the 7th September to the 10th October—a period of intense and unremitting strain for the transportation services of both combatants—it may be said with little exaggeration that transportation was strategy. In the race to achieve or else to counter envelopment on the open Northern flank, formations came into action just so fast as they could be moved over the rickety railway system: anything in the nature of a deliberate concentration would have meant loss of time when hours were precious; strategy had to conform to technical possibilities. These conditions held for the Allies no less than for the Germans. As the gunfire rolled northward away from Paris, railway repairs had to be pressed forward on the French as well as on the German side, and the balance of strategic mobility swung back from its position at the time of the Marne to a more even level.

(*a*) *German Troop Moves.*—Troop moves from Lorraine to the German right wing began on 7th September. A glance at the sketch map will show the technical position at this date. The thorough demolitions on the important lateral Montmédy–Charleville–Hirson were now felt to their full effect; for only two, or rather one and a half, routes remained available: (A) Trier–Gerolstein–Aachen–Liège–Brussels–Mons–Cambrai, and (B) Metz–Luxemburg–Marloie–to opposite Namur. Of these, route A from Aachen onwards was already labouring under heavy maintenance traffic (the lines of communication of no less than five armies passed through Liège): while not until the Meuse bridge had been repaired on 30th September could route B be extended beyond Namur through Charleroi. The formations railed over these two routes between 7th September and 8th October, under difficulties of working that have already been described, are given in Appendix A—fifteen infantry divisions, four cavalry divisions, and proportionate Corps and Army troops in 1,266 trains. These figures, which might seem incredible were it not for the comparable achievement by the Chemin de Fer du Nord during these same weeks, reflect in no small measure the strategic insight and determination of the Director-General of Railways, Lieutenant-Colonel Groener.[1] His was the understanding and the will to strain his technical resources to their utmost limit: "the troop moves ordered must, under all circumstances, be carried through as ordered, for the issue of the campaign may turn upon them."

[1] Lt.-Colonel Wilhelm Groener was to follow Ludendorff in November, 1918, as First Quartermaster-General, and to become in January, 1928, Germany's Minister of Defence.

The normal density of movement for a Corps was forty trains a day [1]; but, except on that part of the journey which lay over the home system, it was quite impossible to maintain any semblance of strict timekeeping. Interference arose from three principal causes—technical mishaps, hostile action, and congestion bred of cumulative delay and competing supply traffic. Take, for instance, the interruptions to the IXth Corps move—two collisions and a derailment at Mons within the space of three days: a sortie from Antwerp, closing the Liège–Brussels line; and appalling congestion on the one line open (Namur–Charleroi), due to the evacuation of prisoners from Maubeuge and the pressure of urgent supplies, ammunition, and drafts for the right wing armies.[2] The check was felt far back on the home system. At midnight 14th/15th September the move was more than thirty-six hours behind time: twenty-one trains were standing in Herbesthal alone. Matters improved somewhat after repair of the line broken by the Belgians; but a French attack, damaging the Cambrai–St. Quentin line, caused fifteen hours delay to traffic. Subsequent moves encountered similar interference, and drivers were sometimes on the footplate sixty hours at a stretch. French and Belgian attacks continued, though with small effect. Cambrai was bombed on 24th and 25th September; and on 29th September a number of driverless trains were released from the direction of Enghein against the Brussels–Mons line, though with more ingenuity than success. In fact, more trouble was caused by the Operations Section of the General Staff diverting trains of the 4th Ersatz Division from Marloie through Liège for Brussels without reference to the Director-General of Railways, for it meant the blocking back of many trains which should have had priority. On 23rd September fourteen trains of the XXIst Corps were held in Aachen on an appeal from Liège for respite; and on 2nd October fifty-eight troop, draft, and supply trains were at a standstill in the Köln district.

Gradually, with the progress of repairs and a reduction of the density over each route to thirty troop trains a day[3], delay became less chronic;

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[1] Two trains an hour, with a daily free period of four hours to take up slack. Control of movement was delegated to the Line Commissions in each operating district on the flexible system described in "Strategic Movement by Rail" (See the JOURNAL for May, 1935). Detrainment stations were determined by the situation at the front.

[2] It was arranged that one ammunition, supply, or personnel train should follow every two troop trains.

[3] This meant for the XIV Corps, which used both routes, sixty trains a day. This density was fairly well maintained, e.g., on 5th October sixty-five trains, of which fifty-two were troop trains of the XIVth Corps, passed through Mons.

but even the XIV Corps, the last of the series, was at one time running fifteen to twenty hours late owing to a bad derailment and delay in clearing empty stock.

This series of moves from Lorraine was not the only troop movement taking place at this time over the repaired railways in occupied territory. The struggle on the right wing drew formations also from the centre. Between 27th September and 10th October one Corps, the infantry of four divisions, and a mixed brigade were railed from the Aisne to the region St. Quentin–Valenciennes, partly via Laon–Tergnier, partly via Charleville–Hirson (covering the broken link North of Hirson by march route)–Maubeuge. Nor was the strain upon the railway service relaxed until in mid-November the struggle died down from mutual exhaustion. But the move of the new Reserve Corps who fought at Ypres, and the subsequent stream of reinforcements to the same sector, no longer presented the same difficulty. Order was being evolved out of the earlier chaos. The repair of broken telegraph lines and of damaged points and signal systems meant safer movement; the repair of water stations aided locomotive working; and the operating personnel were growing accustomed to the equipment and to the routes which had at first been strange to them.

(*b*) *Allied Troop Moves.*—For the manœuvre of the Marne, G.Q.G. had disposed of an intact railway system. The situation changed, however, as soon as the Allied left wing, shifting ground steadily to northward, passed out of reach from Paris: for in the matter of damage to the railways, contrasting with earlier omissions, there had been "*quelque exagération.*" Before evacuating Amiens the French had closed every avenue of approach, save that from Creil, by a girdle of blown bridges, including Poix viaduct on the Rouen–Amiens line; while, to cover Paris, all the Oise bridges had been blown except one, near Pontoise, which was saved by the personal intervention of Galliéni. These Oise crossings were not reopened until mid-November, Poix viaduct not till June 1915; so that during the Race to the Sea all traffic had to be routed either up the Oise to Creil and thence, as repairs progressed, over the Nord main line through Amiens; or else via Beauvais or Rouen and over the single line Abancourt–Eu–Abbeville. This meant a cramping of strategic movement comparable to conditions at this same period on the German side.

Appendix "B" tabulates the Allied, for comparison with the German, troop moves to the Northern wing during the period 10th September to 9th October. It is at once apparent how neck and neck was the rail movement taking place on either side of the lengthening battle front.

Cf. (*a*) German movement 7th September to 10th October—four Cavalry Divisions, seventeen Divisions and the infantry of four more, with proportionate Corps and Army troops in about 1,400 trains: and (*b*) Allied movement 10th September to 9th October—three Cavalry Divisions, eighteen Divisions, and proportionate Corps and Army troops in about 1,100 trains.

In their earlier stages these lateral moves cut across the lines of communication for the French right and centre armies: northward of Paris they competed with supply, technical repair, and heavy refugee traffic. In consequence a density of twenty-four trains a day was adopted as normal for each "*courant*" (movement of a division, corps, etc., over a single route).[1] This was lower than the density—forty, later reduced to thirty, trains a day—attempted by the Germans, but the French moves appear to have been executed closer to schedule. Under such conditions it was inevitable that G.Q.G. should find technical possibilities falling short of its strategic conceptions. It had been hoped, for instance, to concentrate de Castelnau's Second Army between the Oise and the Somme prior to striking in full force at the German flank; but the time factor prevented any deliberate manœuvre of this sort, and the formations of the XIVth and XXth Corps had to be put in as they detrained. During this critical month, eight cavalry and three infantry divisions were transferred to the northern wing wholly by march route; while the XIth and Xth Corps from the neighbourhood of Rheims had to march as far as Compiègne, across the Oise, before they could be moved by rail.

These shortcomings in respect of lateral mobility were due not only to the demolitions executed during withdrawal, but also to insufficient provision for such movement in the pre-War railway system. New construction was put in hand as early as October to cut out reversals of movement and in other ways to facilitate the handling of through cross-traffic, particularly in the Paris region. But measures of this sort took time; and meanwhile the strain had to be taken by the existing lay-outs. That the attenuated Nord system was able, with the reopening of damaged bridges and with increasing experience of war conditions, to accept a volume of traffic far exceeding peace-time calculations of capacity and comparable to that being handled by the entire railway system in German occupied territory, serves but to emphasize the distinction between intact and damaged railways; for the surviving fragment of the Nord had suffered little or no damage to technical equipment, and was operated by men who knew it blindfold. From

[1] Cf. a normal density of forty-eight trains a day during the initial strategic concentration, but under altogether different conditions.

10th October onward, till the battle of Ypres died down, troop movement continued with spasms of intense activity. But though slacks were in force over repaired bridges and the Chemin de Fer du Nord remained little more than the Paris–Amiens–Calais main line, technical limitations no longer governed strategy. The railway system, such as it was, was once again in working order.

Comments

(*a*) *Damage.*[1]—Railways are only a part of the 'transportation system in a theatre of war; and the comments which follow must be read with the conception of a single movement organization constantly in mind, in which roads and railways supplement each other. Railways have lost some of their former pre-eminence among transportation services since 1914; nevertheless, in terms of dislocation to bulk movement, damage to rail communications still furnishes the best return for the explosive used.

Three degrees of demolition may be distinguished; each must be understood as embracing the lower orders of destruction which follow: (i.) Systematic track demolition. (ii.) The destruction of major engineering works. (iii.) The wrecking of technical equipment.

Systematic track demolition, as part of a wider programme, was first employed by the Germans in South-West Poland in October, 1914, and later in the withdrawal to the Hindenburg line in 1917—these were both deliberate operations—as well as by the Russians, less thoroughly, after the Gorlice–Tarnow break-through in 1915, and by the Germans again, still in enemy territory, during the last phase of the War in the West. But though of immense importance tactically and strategically, wholesale demolition falls outside the scope of this article. Here too a subtle distinction may be noted. Demolitions intended primarily to cover disengagement or delay pursuit must include all rail and road communications, with stress perhaps upon the latter. But demolitions on a less ambitious scale, and with stress laid on the railways, may still achieve much: they may definitely restrict the enemy's freedom of manœuvre. In fact, in the initial stages of a war, or whenever the situation in the theatre of war is changing rapidly, modern developments in mechanization, as well as past experience, suggest a doubt whether any complicated demolition programme is likely to be carried through. Strategic surprise will assume new forms. The more reason then to concentrate upon essentials—the demolition of major engineering

[1] On this subject see also "Strategic Demolitions," in the JOURNAL for February, 1928.

works ; and on laterals no less than on routes from front to rear. The wrecking of technical equipment, especially of locomotive water supplies, signal boxes, and telegraph lines, should be a matter of routine. Consistent damage of this type will hamper operating long after spasmodic damage to track or minor engineering works has been repaired.

Railway demolitions then are essentially strategic. They should never be left to fall within the sphere of hasty demolitions. Time is needed for their execution ; though time will be limited by pressure to keep lines open as long as possible, and by the need to evacuate repair material, rolling stock, and technical personnel. A pre-determined policy and clear allocation of responsibility are, therefore, absolutely essential. The Marne campaign serves well enough to illustrate the effect even of partial damage. The German General Staff had calculated before the War that a modern army could not operate more than seventy-five miles from its railheads. The element of risk—excluding politics—accepted in the Schlieffen plan was that the right wing armies might outrun their means of supply before forcing a decision. To prevent irreparable damage to the Belgian railways reliance was placed on strategic surprise ; and justifiably. But although supply never failed, the crisis of the Marne found the German armies labouring under the strategic disadvantage of insecure communications—insecure, even without air bombing ; and the effects of this constraint on freedom of manœuvre could only be neutralized by a withdrawal which, in conjunction with the progress of repairs, succeeded in re-establishing a more even balance of strategic mobility.

(*b*) *Repair.*—Repair then, the opening up of communications (a problem inseparable from the strategic offensive), must be regarded from the standpoint of manœuvre as well as of supply. Probable damage and the estimated rate of repair will, too, influence the strategic plan. The longer way round may be the quicker to open up.[1] The character of the country to be traversed is in itself a very fair guide to probable damage. In flat country major engineering works are virtually confined to the crossings over the principal waterways ; but in hill country like the Ardennes, bridges, viaducts, and tunnels abound, so that repair may well take months.[2] Mechanization may possibly facilitate the seizure of defiles ; but if major engineering

[1] This does not necessarily imply that to secure the longer route it is necessary to advance by it.

[2] This applies, of course, to road as well as rail communications. The more carefully engineered the modern road (with banks, cuttings, viaducts) the closer it approaches a railway in susceptibility to damage.

works have been successfully blown, the delay imposed will doubtless approximate to the data on p. 318. Study of the map, however, needs to be supplemented by technical intelligence (air reconnaissance is hardly sufficient); for the crux of the matter is the ease with which deviations can be laid.

Once the advance is under way, repair must be pressed forward in accordance with a programme which co-ordinates, to the full, technical and strategic considerations. And here a new factor—exposure to air attack—may involve some modification of established principles, in particular that of concentrating all resources on opening up one or two routes as fast as possible. It is true that greater dispersion, with the aid of mechanical transport, along these same routes may diminish the number of favourable targets. But more important is the consideration that a few repaired lines, in virtue of their low capacity (low, that is, for railways—not for roads, even undamaged roads), have very little elasticity. This means a susceptibility to air attack infinitely greater than that of an intact railway network; turn once more to the sketch map, but with air attack in mind. Increased mechanization may help, but will not solve the problem; and it may be that there is no solution short of an increase in technical strength on the lines of communication at the expense of fighting troops.

This low capacity of repaired lines, particularly of those in enemy territory, is inevitable. The period of convalescence will depend on the repair resources available in relation to the damage done, especially to technical equipment. The mere fact of hasty repair implies some sacrifice in operating efficiency (awkward deviations, single line working over repaired bridges, defective permanent way, insufficient equipment); and this applies with particular force to the control of movement. Nevertheless pressure will always be applied to open lines for traffic at the earliest possible date. Regular supply traffic can safely be accepted earlier than large scale troop movement. But overstrain while repair work is still in progress both delays repair and brings traffic to a standstill. Irregular working imposes, too, a cumulative strain upon all railway personnel, a strain which is likely to be increased in future by exposure to air bombing. Hence the value of modern road and cross-country transport; not as a permanent substitute for railways, but as helping to prevent overstrain before the railways have recovered their full strength, and above all as furnishing a margin of elasticity. A system strained to full capacity is rigid. Hence, too, the value of a high technical morale. In this respect the work of the German railway service in occupied territory may well serve as a model—for the unity of control, elastic to meet endemic technical troubles and

yet inflexible in will ; and for the splendid response to military demands, not only on the part of the highly trained movement staff, but throughout the whole hierarchy of purely technical personnel.

These reflections have not been put forward as an exhaustive survey of the problems linked with demolitions and repair ; but rather to suggest the breadth of those problems and as a reminder, with the experience of 1914 before us, how entangled strategic and technical considerations are. In this connection two principles will bear repetition. First, that railways are but an integral part of transportation : the same considerations regarding damage, repair, and opening for traffic apply with little alteration in the wider sphere. Second, the paramount need for mutual trust and understanding between Commanders and staffs on the one hand, and the technical services on the other. The latter should speak with an authority based on technical knowledge, but seasoned with an insight into strategic and administrative necessities ; and the former should comprehend.

APPENDIX A.

(German Troop Moves from the Left to the Right Wing (7th September to 8th October, 1914).

Formation.	*No. of Trains.*	*From Area*	*Entraining*	*Route.*	*To Area*	*Detraining*
7th Cav. Div.	32	S.E. of Metz.	7–8/9	A	S.W. of Brussels.	8–9/9
XV Corps and Seventh Army Services.	174	Saarburg.	8–14/9	A	Cambrai–St. Quentin–Laon : Mons.	10–23/9
I Bav. Corps.	137	Metz.	14–17/9	B	S. of Namur.	14–19/9
XXI Corps.	135	East of Metz.	17/9 —	A	St. Quentin.	20–28/9
II Bav. Corps.	156	Metz.	18–21/9	B	S. of Namur.	19–23/9
XIV Res. Corps.	115	East of Metz.	21–25/9	A	Cambrai.	24–29/9
4th Ersatz Div.	58	S.E. of Metz.	22–24/9	B [1]	Brussels..	24–27/9
Sixth Army Services.	111	East of Metz.	26–30/9	A	S.W. of Brussels.	28/9–6/10
I Bav. Res. Corps.	97	Metz.	27–29/9	B [2]	Valenciennes–Cambrai.	29/9–2/10
6th Cav. Div.	36	Arlon.	30/9–1/10	B	Mons.	1–2/10
Bav. Cav. Div.	34	Metz.	30/9–1/10	A	Valenciennes.	2–3/10
3rd. Cav. Div.	35	Arlon.	1–2/10	B	Mons.	3–4/10
XIV Corps.	146	Metz.	3–5/10	A & B	Valenciennes–Douai.	4–8/10
	1266					

Route A : Trier–Gerolstein–Aachen–Liège–Namur or Brussels.
Route B : Luxemburg–Marloie–Namur.
In addition a number of formations were moved by road and rail from the centre to the right wing during 27th September to 10th October.

[1] One brigade (twelve trains) was railed on from Namur, West of the Meuse, to Noyon, 16th–19th September.
[2] From Marloie via Liège.

APPENDIX B.

Allied Troop Moves to the Left Wing

(10th September to 9th October, 1914).

Time and Date of G.Q.G. Order.	*Formation.*	*No. of Trains.*	*From Area*	*Time and Date of Start.*	*To Area*	*Arrive by*	*Route.*
	37th Div.	28	Romilly.	10/9	Paris.	11/9	
19.15, 10/9	XIII Corps.	103	Epinal.	Noon, 11/9	Crépy.	12–16/9	Dijon–Paris.
14.20, 17/9	XIV Corps.		Epinal.	5.00, 18/9	Towards Creil.	19–23/9	
7.50, 18/9	H.Q. Second Army and XX Corps.		Toul.	5.00, 19/9	Serqueux and Creil.	20–27/9	Troyes–Versailles–Rouen.
11.10, 21/9	Inf. of XI Corps.	145	Rheims.	21/9	Amiens.	26/9	By road to
18.25, 24/9	X Corps.		Rheims.	25/9	Amiens.	28/9	Compiègne, thence railed via Creil.
21.45, 27/9	77th Res. Div.		Epinal.	18.00, 28/9	Towards Arras.	29/9–1/10	Dijon–Paris–Amiens.
,, ,,	70th Res. Div.		Nancy.	18.00, 28/9	Towards Arras.	29/9–1/10	Troyes–Versailles–Rouen–Eu–Abbeville–Amiens.
18.40, 29/9	4th Cav. Div.		Epernay.	10.00, 30/9	Creil.	30/9–2/10	Paris.
22.55, 30/9	XXI Corps.	110	Chalons.	18.00, 1/10	Béthune–Armentières.	2–6/10	Paris–Amiens–Calais.
20.55, 29/9	7th Cav. Div.		Commercy.	6.00, 2/10	Lille.	3–4/10	Troyes–Versailles–
19.30, 1/10	6th Cav. Div.		Fère Champenoise.	13.00, 3/10	St. Pol.	4–5/10	Rouen-Eu–Abbeville–Etaples.
23.40, 5/10	58th Res. Div.	26	Epinal.	Noon, 6/10	Montdidier.	7–8/10	Chaumont–Chalons–Paris–Creil.
16.10, 7/10	14th Dragoon Bde.		Epinal.	15.00, 8/10			
	Tenth Army Services.	13		9/10			
	Bde. Fusiliers Marins.	7	Paris.	7/10	Dunkirk and Ghent.		Creil–Amiens–Boulogne.
	II British Corps.	105	Soissons.	4/10	Abbeville.	7–9/10	By road to Compiègne, thence railed via Amiens.
	G.H.Q., B.E.F.	4	Fère-en-Tardenois.	8/10	Abbeville.	9/10	Paris–Creil–Amiens.

The following formations moved entirely by road during this period: Cav. Corps (1st, 3rd, 5th and 10th Cav. Divs.), 8th and 9th Cav. Divs., 56th Res. Div., 62nd Res. Div., 45th Div., 1st and 2nd British Cav. Divs.

Note.—This table is based mainly on the French Official History, and Le Hénaff's "Le Rôle Militaire des Chemins de Fer."

AIRCRAFT ATTACKS OR GUNFIRE AGAINST WARSHIPS

By Lieutenant-Commander M. H. C. Young, R.N.,
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THE idea that the aeroplane is now able to supersede the warship has recently been the subject of much discussion in the Press, and even in Parliament. Most of the views put forward have, however, been of a somewhat imaginative type, containing only a very small substratum of fact. It is worth while summarizing the impressions produced by recent remarks on this subject and then examining the facts to see whether this claim has any reasonable basis.

Many writers begin by drawing a picture of large numbers of aircraft appearing, possibly from behind clouds or a smoke screen, and letting fall a rain of bombs upon any ships which are foolhardy enough to be in the vicinity. These aircraft are usually supposed to be able to ignore or to dodge gunfire, and it is often assumed that the majority of bombs dropped will hit. The danger to a fleet from torpedoes dropped by aircraft is also stressed, together with the loss of efficiency produced in exposed positions by machine-gun attacks on personnel. It is then often stated that aircraft have made all waters within flying range of their bases untenable for surface ships of any type, that they are able to protect merchant shipping against surface attack, and that they are an efficient means of defence against the submarine. It is important to realize that the validity of these latter statements depends entirely upon the truth or otherwise of the previous assertions; only if ships are really in fear of air attack will they keep clear of "aircraft-infested" waters, or be prevented from carrying out their normal functions in trade route operations or blockade.

The Potentialities and Limitations of Aircraft.

The first necessity, therefore, is an examination of the potentialities of aircraft attack on warships. Before a reasoned view can be formed on this point, the inherent properties and limitations of aircraft must be considered. Their most important property is their speed; this cannot be matched on the surface, but if it could, there would be a very

good case against using aircraft at sea for any purpose whatsoever. To argue that case is outside the scope of this article, but the point is mentioned here to show that we must always bear in mind that speed is the essential favourable property of aircraft. There is no other important and favourable property. The idea that height in itself confers some real advantage is not a sound one; although greater height minimizes the likelihood of being shot down, and allows the bomb to attain greater velocity, it reduces the chances of obtaining hits. A less important, but still favourable property of aircraft is their relatively small size, which often makes them difficult to see.

The most important limitation of aircraft is their relatively small endurance, connoting the necessity of some conveniently situated base. Despite their high speed, their radius of action is consequently small in comparison with that of ships. Another point which is seldom mentioned is that they cannot stop: for any operation there must necessarily be an ideal position from which to carry it out, and, while the aircraft may be able to reach this position, she cannot maintain herself in it. The aeroplane is unsuited to any operation which requires great accuracy, owing to the unstable nature of its platform and to the difficulty of allowing for the movement imparted to it by the wind.

Surface ships can carry out their duties under almost any weather conditions; the aircraft, however, is at present considerably restricted by weather. On a certain number of days in the year, depending on the part of the world in which operations are taking place, flying cannot be carried out at all; on other days, although flying is possible, low clouds or high and variable winds prevent operations requiring accuracy.

A point on which it is easy to get a wrong impression is that of visibility. It is generally believed that the airman, flying at a great height, has the area in his vicinity spread out like a map before him, and that his range of vision is only limited by the distance of the sea horizon, this distance being greatly increased owing to his height. This condition of affairs only obtains on a very few days in the year, and on many occasions visibility from the air, from any height, is considerably less than that from the surface. As a result of experience it may be stated that, in general, visibility from the air is the same as that from the surface; on most days this is actually the case, and the days when the visibility distance is greater from the surface are approximately balanced by those when it is greater from the air.

To summarize: an aircraft is a small, fast, unsteady platform, unsuitable for accurate work, liable to greater restriction by weather than is a ship, and possessing only limited radius of action. It cannot stop, and from the point of view of attack on ships its height is of no

advantage. With these points in mind we can proceed to consider aircraft attack on ships.

There are three main methods of attack—level bombing, dive bombing, and torpedo attack. It can be assumed that machine-gun attacks on exposed personnel are not going to rid the seas of enemy warships; no nation will ever have enough aircraft to spare to divert some of them to a minor operation of this nature.

Level Bombing

Level bombing may be defined as a method of attack in which the aircraft *must* approach the point at which bombs are to be released on a steady course, at a steady speed, and at a constant height, for a definite minimum period. This period, in peace-time practices, is not less than 90 seconds, and is usually more. In war it would certainly be more, if the same results were aimed at; no aircraft could afford the risk of making the period too short, and hence being forced to make a circuit before being able to aim the bombs. During this approach period the aircraft crew are adjusting the bomb sight and making very small adjustments in their course and speed in order to ensure that the bomb, when released, shall be given the correct initial velocity to obtain a hit. This velocity is compounded of the velocity of the aircraft through the air and the velocity of the air over the ground, the latter being usually referred to as "the wind." "The wind" changes with height, with position, and with time, even on days which to the ordinary observer appear windless; hence its speed and direction must be measured accurately, a relatively short time before bombs are released, and a relatively short distance from the point of attack. It has been found by experience that results of level bombing are extremely poor unless "the wind" has been measured within ten miles of the targets, not more than twenty minutes before bombs are released. In measuring the wind, it is necessary to release something to mark the sea, also a smoke cloud in the air, and to fly round the former for about three minutes. The results of the measurement must then be communicated to the leaders of all the formations of bombing aircraft. It is clear, therefore, that level bombers will lose the important element of surprise completely, except on occasions when they can measure the wind behind clouds. In these latter circumstances the measurement is not so accurate, and the state of the sky required to do this unseen implies an amount of cloud unfavourable to level bombing, owing to the likelihood of the targets becoming obscured either during the approach period or, worse still, just before the moment of dropping. During the approach period, both the bomb aimer and the pilot are concentrating on obtain-

ing the correct settings on the bomb sight and the correct course and speed of the aircraft; this demands a high degree of training and complete concentration, so that bursts of high explosive shell in the vicinity, even if they do not hit, are likely to disturb that concentration sufficiently to produce results considerably inferior to those obtained in peace-time practices.

It has been found that in level bombing, under good conditions, the 50 per cent. zone is about 100 yards, the bombers being at 10,000 feet. At greater heights the zone is larger; from lesser heights the bombs do not penetrate an armoured deck. This figure applies only to those conditions which have been experienced, i.e., peace conditions. When the level bombers are under fire, it is reasonable to suppose that their accuracy will be less. An error of 2° in the course of the aircraft at the moment of dropping from a 150-knot aircraft produces a resultant error of 87 yards in the fall of the bomb, while an error of 2 knots in speed produces a resultant error of 34 yards. The errors in an aircraft under fire are likely to be greater than these; in consequence the 50 per cent. zone under war conditions can be put at a minimum of 300 yards. The area of a circle of radius 300 yards is approximately 283,000 square yards, and in this circle 50 per cent. of the bombs will fall. The percentage of hits which will probably be obtained on a battleship of approximate surface area 5,000 square yards will, therefore, be $5{,}000 \times \frac{1}{2} \times 100$ divided by 283,000, or 0.88 per cent. approximately. Even if the 50 per cent. zone under war conditions is reduced to 250 yards, the probable percentage of hits rises to only 1.27 per cent. A further important point is that these figures refer to the percentage of hits obtained by aircraft which reach the correct position for dropping their bombs before being shot down; if any are shot down before dropping, the percentage of hits from the whole attacking force will be further reduced. It is therefore necessary to examine the chances of hitting level bombers before they reach dropping position.

In marking high-angle gunfire practices against targets corresponding to level bombers, which maintain a steady course and speed at a constant height, it has been observed that approximately 20 per cent. of the bursts are within 100 yards of the target. Assuming that a burst within 40 yards of the target will be effective, the percentage of effective bursts will then be $20 \times (4/10)^3 \times \frac{1}{2}$, since only the "shorts" and not the "overs" can be considered. This gives a percentage of hits of 0.64, or approximately one hit for every 156 rounds fired. The level bomber is on his approach course for a minimum of 90 seconds, and it is only during this period that fire will be effective against him. Assuming a rate of fire of 16 rounds per minute from each of four high-angle guns

in the ship attacked, 96 rounds will be fired at him before the time of release. The chance of his being shot down before dropping bombs is therefore 96 divided by 156, or 61 per cent. approximately. Hence 39 per cent. of the attacking force should be able to drop their bombs, if one formation of aircraft is approaching for each ship firing, and the approaches are simultaneous. If the number of formations at any one moment is less than the number of ships firing at them, some of the formations will have more than 96 rounds fired at them before they release their bombs, and the percentage of the attacking force which drops bombs will be reduced. It is an extremely difficult matter to time the arrival of a number of formations of aircraft to within 90 seconds, and the results of attempts to carry out this difficult synchronization in peace-time exercises suggest that there will seldom, if ever, be more than four formations approaching at any one time. The casualties, therefore, will depend on the number of ships firing. With three ships firing at each formation, the chances are in favour of 94 per cent. of the attacking force being shot down before reaching the dropping position.

When one ship is firing at each attacking formation, as 39 per cent. of the aircraft reach dropping position, the percentage of hits to be expected from the whole attacking force is 39 per cent. of 1 per cent., or 0.4 per cent. approximately.

The considerations set out above, which are based on the average case, necessarily lead to the conclusion that a fleet with an adequate anti-aircraft armament has little to fear from level bombers, while even in cases where the available volume of high-angle gunfire is insufficient to prevent the aircraft from reaching dropping position, a probable result of 1 per cent. hits can seldom justify the diversion of the aircraft from more profitable uses.

Dive Bombing

The next method of attack to be considered is dive bombing. This may be defined as the release of bombs when coming out of a " dive " towards the target. The direction, speed, and angle of dive are imposed by the position and height chosen for release ; there is only one correct release position for any one dive towards the target, as the fact that the bomb, after release, does not travel in a straight line ensures that a release earlier or later than the correct one will not secure a hit. The dive imparts an additional component to the vertical velocity of the bomb, so that its striking velocity will be the same as that of a bomb released by a level bomber from a greater height. It is usually assumed that this additional velocity is roughly equivalent to 4000 feet of height,

i.e., that a dive bomber dropping from 2000 feet will give the bomb the same striking velocity as that obtained by a level bomber at 6,000 feet. This figure is, naturally, not constant as one goes up the height scale; it is clear that a diving release from 20,000 feet will obtain no advantage in velocity over a level release from the same height, since in both cases the bombs will have reached their terminal velocities before striking. At present, dive bombing is done by eye, without the assistance of any form of vector bomb sight, hence it is not necessary accurately to measure the wind in the vicinity of the enemy, since wind must be instinctively allowed for in the dive. The pilot of the aircraft must give complete concentration to the aiming of his machine during the period of the dive, and is as likely to be disturbed by bursts of high-explosive shell in the vicinity as are the crew of a level bomber.

As a standard for investigation, the height of diving release may be taken as 2,000 feet, the speed of the aircraft as 240 knots, and the time on aim as 15 seconds. Assuming an angle of dive of 45°, this involves a loss of height during the time on aim of approximately 5,000 feet, with a greater loss of height if the dive is at a steeper angle or if the speed is greater. The dive bomber, therefore, must have an uninterrupted view of the target from at least 7,000 feet, and the method is unsuitable if a cloud layer exists below that height.

Under good conditions in peace-time the 50 per cent. zone for diving releases from 2,000 feet may be taken as 50 yards. It is reasonable to assume that the effect of war conditions will be similar to that for level bombers, and hence that the 50 per cent. zone will then be 150 yards. As the percentage of hits obtained varies inversely as the square of the radius of the 50 per cent. zone, and as this zone for dive bombing is half the size of that in level bombing, it can be seen that there will be four times the probable percentage of hits. For level bombing a figure of 1 per cent. was arrived at, so that we can say that for dive bombing the figure should be 4 per cent. As this figure again refers only to the aircraft which succeed in reaching the dropping position, it is again necessary to examine the chances of shooting them down before they have released their bombs. Two essentially different types of gunfire can be developed against dive bombers—barrage fire from the A.A. guns (say 4.7-in.) and pom-pom fire.

Since dive bombers approach relatively very close to their targets, a barrage will be placed so close that deflection errors may be neglected, and the problem becomes one of the chance of an aircraft passing through the dangerous zone during the time that a burst is occurring in it. Again, assuming a danger space of 40 yards, the aircraft will, at 240 knots, be in this space for 0.3 seconds. Four guns firing at 16 rounds

per minute will be able to produce a burst every 0.94 seconds approximately. The chance of the aircraft being shot down is therefore 0.3 divided by 0.94, or approximately 32 per cent. This figure, however, is considered to be somewhat on the high side, as the calculations assume the exact division of the time between the four guns. It appears reasonable to accept a figure of 20 per cent. Quite apart from the actual figure, the mere presence of a barrage of this type would exercise a considerable moral effect, and greatly reduce accuracy of aim. It is difficult to produce any calculations of the effect of multiple pom-pom fire on dive bombers, but from peace-time practices it seems reasonable to assume that 50 per cent. casualties would be caused. As 20 per cent. casualties will have already been caused by the barrage, a total of 60 per cent. casualties may be expected. This reduces the percentage of hits obtained by the whole attacking force to 40 per cent. of 4 per cent., or a final figure of 1.6 per cent. This result, while superior to that obtained from level bombing, is still poor, and bears no relation to the extravagant claims that have been made.

The analyses of level and dive bombing made above have only taken into account one particular case of each, namely, 10,000 feet and 150 knots for level bombing, and 2,000 feet and 240 knots for dive bombing. The chief feature of the analyses is that the casualties to be expected are much higher than is generally supposed, while the percentage of hits is small. It may be suggested that, in order to avoid these heavy casualties, attacks would be carried out from a greater height or at a greater speed; alternatively, a lower height may be proposed in order to increase accuracy. It is therefore necessary to examine the effect of variations in height and speed, both on accuracy and on casualties. As these effects are, in general, similar for both level and dive bombing, a single examination will cover both.

Investigations show that the size of the 50 per cent. zones for bombs varies directly as the speed of the aircraft. As the probable percentage of hits varies inversely as the square of the radius of the 50 per cent. zone, it will also vary inversely as the square of the speed; if the speed is doubled, the percentage of hits will be divided by four. It can also be shown that the number of effective bursts from A.A. guns should vary inversely as the speed of the aircraft; hence casualties will also vary inversely as the speed. The combined effect can best be shown by a concrete case. Suppose that in the example of dive bombing analysed the speed were put up to 300 knots, i.e., multiplied by 5/4. The percentage of casualties would then be 60 × 4/5, or 48 per cent; hence 52 per cent. of the attacking force would release their bombs. The percentage of hits obtained by these would be $4 \times (4/5)^2$, or 2.56

per cent., and hence the percentage of hits obtained by the whole attacking force would be 52 of 2.56, or 1.33 per cent. This compares with a percentage of hits of 1.6 at 240 knots. There has been a relatively equal reduction both in casualties and in hits on the ships. As the latter are already far too small, it is clear that to put up the speed does not pay. If the speed were lowered to 180 knots, 3/4 of the original 240, it can similarly be calculated that the casualties would rise to 80 per cent.; hence 20 per cent. would release their bombs. These would obtain a percentage of hits of 7.1, and the percentage of hits from the whole attacking force would be 20 of 7.1, or 1.4 per cent. Here a reduction in the percentage of hits is obtained, combined with an increase in the casualties: to lower the speed does not, therefore, pay.

Exactly the same considerations apply to height, so it is not necessary to repeat the calculations. The only essential difference is that, for dive bombing, the size of the 50 per cent. zone increases more rapidly above 4,000 feet than does the height; it soon becomes infinite, in which case there will be no hit on the ships at all. It is safe to say that above 4,000 feet the hits obtained by dive bombing will be negligible. A further conclusion to be drawn from these considerations is that neither form of bombing will be practicable if there is a cloud layer at 7,000 feet or below, or, if the gaps in detached clouds below 7,000 feet are not of sufficient size to enable the bombers to see their targets for the whole of their time on aim, i.e., 90 seconds for level bombers and 15 seconds for dive bombers. This implies gaps of a minimum of 2 miles and ½ mile respectively, assuming that the clouds are at half the height of the bombers; it also implies that the moment of attack must be synchronized exactly with one of these gaps, which experience has shown to be a matter of great difficulty.

Torpedo Attacks from Aircraft

The next step is to examine the possibilities of torpedo attack from aircraft. In this method of attack the torpedo must be dropped from within 50 feet of the water, otherwise the shock of impact with the water is sufficiently great to prevent a proper functioning of its mechanism. The usual result of a drop from too great a height is that the torpedo goes straight to the bottom owing to failure of the depth-keeping gear. It has been found that 1,000 yards is the maximum range at which there is a reasonable chance of securing a hit; outside this range the chances of hitting are negligible. The dropping range usually assumed as the normal is 800 yards, and the speed 120 knots; under these conditions in peacetime 50 per cent. hits may be expected. The percentage of hits will vary inversely as the speed up to about 150 knots; above

this speed it will fall off more rapidly, and in addition, the chances of a mechanical failure in the torpedo will be greatly increased. The aiming of a torpedo is not an easy matter, and requires great concentration, which will be seriously disturbed by gunfire, hence under war conditions the percentage of hits obtained by those aircraft which reach dropping position can be put at 15 per cent. It is now necessary to ascertain the proportion of the attacking force which should be able to reach this position. The aircraft will again be subjected to barrage fire from the A.A. armament and also from the secondary armament, and to pom-pom fire. The considerations affecting barrage fire will be the same as those already discussed when dealing with dive bombers, except that the aircraft speed will be only half that of the bombers, so that twice the casualties may be expected. This gives a figure of 40 per cent. casualties, neglecting the effect of any secondary armament barrage. The same considerations as to moral effect will apply. This leaves 60 per cent. of the attackers to be subjected to pom-pom fire.

The results of practices against targets corresponding to torpedo-dropping aircraft show that 50 per cent. casualties may be expected for each multiple pom-pom firing. As modern battleships will have two of these weapons each side, 75 per cent. casualties may be expected—one gun hitting 50 per cent., the other 50 per cent. of the survivors. As 60 per cent. of the original attacking force will have passed through the barrage, 75 per cent. of 60 per cent., or 45 per cent., will be shot down by the pom-poms. Hence the total casualties will be 85 per cent.; so that 15 per cent. of the original attacking force should reach dropping position. The final percentage of hits should therefore be 15 of 15, or 2.25 per cent. In this connection it must be remembered that each aircraft can only drop one torpedo for each attack; bombers can increase the number of hits by carrying more, and hence smaller, bombs, but this method is not available to the torpedo aircraft.

We are now in a position to summarize the probable results of the three types of attack described above, from the point of view of percentages of hits and of casualties to be expected; the effect of these hits will be considered later. The summary is best expressed in tabular form :—

Method of Attack.	*Percentage of Hits on Ships.*	*Percentage of Casualties to Aircraft.*
Level bombing	0.4 ..	61
Dive bombing	1.6 ..	60
Torpedo attack	2.25 ..	85

While these figures are only those for one particular case, they correspond to the optimum case from the aircraft's point of view; different conditions would either directly reduce the percentage of hits or, while increasing the apparent percentage of hits, would so increase the casualties sustained before dropping that the percentage of hits relative to the whole attacking force would be reduced from the figures given above. The full implications of these figures cannot be satisfactorily examined until the effect on the ships of hits of various types has been considered. They show, however, that no attack by less than 500 aircraft will be of much real value.

Effect of Bombs on Battleships

The results of attack on battleships with 500-lb. bombs will be quite superficial, as they will not in any circumstances penetrate the armoured deck, their maximum penetrative power being less than 3 inches of armour. It is therefore necessary to consider the effects of a hit with a 1,000-lb. bomb. This will penetrate approximately 4.5 to 5 inches of armour if dropped from 8,000 feet or higher. The resulting damage depends mainly on what part of the ship is hit; if it is a part where the armoured deck is thicker than 5 inches the real loss of fighting efficiency will be small, whereas if it is a part where the deck can be penetrated, considerable damage may be done. The effect is best expressed in figures by saying that one hit with a 1,000-lb. bomb may cause a 10 per cent. loss of fighting efficiency. The chance of actually sinking the ship or causing complete loss of fighting efficiency is almost negligible; it can best be expressed as a 1 per cent. chance, although this figure is very doubtful.

These figures may appear surprising, but they are based on the probable results of hitting modern armoured ships, whereas the experiments from which most writers in the popular Press draw their data were carried out many years ago, against ships with no armoured deck, or at most with a 3-in. deck. In many of these experiments the target ship did not even have her watertight doors closed, notably in the American experiments on the "Ostfriesland" which are so often quoted. In this case three direct hits and two "near misses" with 1,100-lb. bombs only caused this pre-war battleship to develop a list. She was eventually sunk by four "near misses" with 2,000-lb. bombs.

It is now necessary to examine the doctrine of the "near miss" which has been developed by some writers. It is often stated that one or more "near misses" will sink any ship, though the distance from the ship's side at which an ordinary harmless miss becomes a highly dangerous "near miss" is seldom, if ever, defined. The fact which

should form the basis for any investigations on this subject is that the force of an explosion in a fluid medium decreases as the fifth power of the distance from the point of explosion, i.e., at double the distance, there will be one thirty-second part of the effect. In the American experiments on the uncompleted battleship " Washington," two 2,000-lb. bombs were exploded " close enough to throw tons of water on board " ; some distance must be assumed to fit in with this statement, and a distance of 20 feet seems reasonable. The effect was apparently negligible. The condensers were afterwards examined, and showed no signs of injury. The ship was finally sunk by gunfire after bombing had failed to do appreciable damage. It has yet to be proved that the damage caused by a similar explosion at 10 feet, although 32 times as great, will not still be negligible, and until that proof is provided the doctrine of the " near miss," even as near as 10 feet, is not worth serious consideration.

A point which must not be neglected is the limitation in the size of bombs which can be released in a dive bombing attack. It is possible that some aircraft can release a 500-lb. bomb under these conditions, but at present no aircraft is capable of dive-bombing with 1,000-lb. bombs. Hence dive bombing is not a vital method of attack on battleships, since the 500-lb. bombs will not penetrate their decks, and its use is restricted to attacks on light craft with decks less than 3 inches thick.

As regards the damage caused by hits from aircraft torpedoes : it must first of all be realized that the torpedo normally used by ships is too heavy to be carried by an aeroplane—the aircraft torpedo has a bursting charge of approximately one-half of that of the ship torpedo. As battleships are designed to withstand several hits from ship torpedoes without suffering vital damage, a single hit from an aircraft torpedo, with half the bursting charge, should have little effect. It has been calculated that one hit from an aircraft torpedo would produce a loss of speed of about 5 per cent. in a battleship, and that a very large number of hits would be necessary to put her out of action. It is thus important to note that, in an aircraft torpedo attack on a fleet, such hits as are obtained will be distributed amongst different ships ; limitations of space will compel the attackers to divide their efforts, as otherwise the attacks will have to be separated by time intervals, which implies more ships firing at each group of attackers and hence an increase in the already heavy casualties and a reduction in the number of hits.

We are now in a position to consider the results of an air attack on ships. For convenience it will be assumed that a thousand aircraft are available, although a combination of circumstances in which a thousand aircraft could be assembled for one attack is extremely difficult to

imagine: the organization and number of bases required would be considerable, and the possible areas on the earth's surface where this could be arranged are of very small extent. It will also be assumed that the aircraft are able to proceed directly to the position occupied at that time by the ships, in other words, that no search is required, although in most cases a considerable proportion of the aircraft available will be required for search and shadowing duties. The fleet attacked will be taken to consist of eight battleships, eight cruisers, and light craft, possessing no fighting aircraft capable of engaging the attackers. It is further supposed that there is no cloud below 10,000 feet.

The first case is that in which the attackers decide to use level bombing. After measuring the wind, they will proceed to the attack, coming under fire from the A.A. armament of sixteen ships. It will be assumed, however, that the attacking force has practised attacks on this large scale in peace time sufficiently often to achieve an exceptionally high degree of synchronization, and hence that each bombing formation has only one ship firing at it, sixteen formations approaching simultaneously. It is not reasonable to suppose that any larger number of formations could attack together, owing to considerations of space. We will assume that each aircraft carries two 1,000-lb. bombs, and that to concentrate the effect they all select the same target, one of the battleships. From the figures previously given, 39 per cent., or 390 aircraft, will succeed in releasing their bombs, and as these will get 1 per cent. hits, they will obtain, theoretically, 7.8 hits. As the hits should be represented by a whole number, 8 hits can be assumed. The remaining 610 aircraft will have been shot down before reaching the dropping position. The 8 hits obtained might result in a complete though temporary loss of fighting efficiency of one ship. As against this the attacking force has lost 610 aircraft, and the remaining ships are undamaged.

In the case outlined above the game is clearly not worth the candle. Level bombing attacks are likely to be restricted to occasions when only one or two ships are in company, at least after experiencing the fire of a larger number. It can be seen that, unless the number of aircraft employed simultaneously is very large and the number of ships small, level bombing will not pay. An analysis of a large scale dive bombing or torpedo attack will produce somewhat similar figures to those given above for level bombing, except that casualties will be even higher. The conclusion is that protection against large scale air attack is given by keeping a sufficiency of ships in company, the criterion being that one ship should be available to fire at each attacking formation which the enemy can produce simultaneously. Whether or not the

enemy can make a number of successive attacks, even if separated by time intervals of as little as one minute, does not affect the argument. If this important condition is fulfilled, warships have little to fear from air attack, but the single ship is in considerable danger in waters within enemy air range, as by careful synchronization a number of enemy formations can attack her without being fired at, in which case the percentage of hits will rise considerably.

It is, perhaps, important to emphasize that the conclusions arrived at above, although they may seem to depend upon theoretical reasoning, have been developed from two basic practical facts, namely the results of aircraft bombing and torpedo dropping practices during the last few years, and the results of gunnery practices against wireless-controlled aeroplane targets. These latter have been made to simulate the approaches of attacking bombers and torpedo droppers, and the frequency with which they have been shot down corresponds with the figures given. The allowance made for moral effect of gunfire and disturbance of concentration during aiming is based on the experience of the writer and his friends when carrying out level bombing ; although we were, naturally, not fired at, the ease with which our concentration was disturbed by extraneous matters, such as very bumpy weather, or passing near the trajectories of 15-in. salvos, suggested that our results would have been considerably worse if flying through high-explosive shell bursts with the knowledge of a less than even chance of survival. Also, a burst in the vicinity, even though it did not hit, would make the air very bumpy, and upset the precise handling of the aircraft necessary in aiming either bombs or torpedoes.[1]

The possibility of avoiding action being taken by the ships has not been considered here, for two reasons. Firstly, the conclusion drawn is that the main protection from air attack is given by gunfire, and secondly, in the case of bombing, the area in which the bombs are likely to fall is so large that a ship is almost as likely to alter course into the place where a bomb is going to fall as to alter course away from it. In the case of torpedo attacks, however, avoiding action has been tried in peace-time practices with some success in reducing the number of hits, and it does not reduce the efficiency of pom-pom or barrage fire.

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[1] It was very apparent that the effect of a 12-in. high-explosive shell with a time fuze, if it burst anywhere near enemy aircraft operating within range of one of our large monitors on the Belgian coast, was to deter them from even attempting to attack, and they generally disappeared at once. Although they had every opportunity to bomb these vessels and frequent provocation to do so, German aeroplanes were very chary of approaching our monitors, with their 12-in. and 15-in. guns.—EDITOR.

From the conclusions drawn above, it is evident that a more effective method of clearing any desired area of enemy warships than that of bombing or attack with aircraft torpedoes must be sought. If we can produce in the desired area a force of warships, the enemy must either fight it or allow it to carry out any operation it wishes ; it is therefore necessary to ensure that our force is capable of defeating any enemy it is likely to encounter. This essential depends upon two main factors—numerical superiority and technical superiority. The former is a political and strategical consideration, and hence outside the scope of this article ; the latter is worth a brief review here.

Gunfire in Comparison with Aircraft Weapons

The primary method of sinking or disabling enemy warships is by gunfire ; as it is here being contrasted with air attack, the essential differences between the two can first be considered. The first of these is the question of opportunity ; the gun carriers (ships) can maintain themselves for relatively long periods in whatever position is at that time strategically important, hence forcing the enemy to fight or to be placed in a position of strategical disadvantage, whereas the bomb carriers (aircraft) can only proceed to that position if it happens to be within air range, from time to time. The aircraft can certainly force an action at their own selected moment, with results which have been investigated above ; but that action can last for only a short time, and in the intervals the surface forces are not being interfered with in any way.

The next question is that of volume of fire. The aircraft can only drop two bombs of effective size (or one torpedo) per aircraft, whereas the ships can, up to certain limits, go on firing as long as there remains any enemy within gun range, and hence can develop a far greater total volume of fire. The factor for converting " percentage of hits " into " total number of hits " will therefore be far greater for ships than for aircraft, and it is clear that the important point in an action is the total number of hits.

Another important point is that of the correction of the fall of shot. Upon observing the fall of a salvo which does not hit, the control officer of a ship can make a correction which increases the likelihood of hitting with the next salvo ; the crew of an aircraft in normal circumstances only aim their bombs once, and if they survive to take part in another attack later, the information they have got from the fall of their first bombs is valueless, owing to the change in the conditions. The crew of an aircraft are, in effect, always in the position of a control officer firing his first salvo, which is the salvo least likely to hit.

The percentage of hits obtained by heavy gunfire is dependent on a large number of conditions which are subject to great variation, so it is difficult to give a general figure. It is reasonable, however, to say that in an average case 5 per cent. hits may be expected, using surface observation only. If aircraft are available to observe and report the fall of shot, this figure should be doubled. These figures are based on the results of recent practices.

In the example of a large scale air attack already given, it was estimated that eight hits would be obtained. To produce the same number of hits by gunfire with aircraft observation, 80 rounds would have to be fired. With an eight-gun battleship, which fires each gun twice per minute, this would take five minutes. The important point is that if the damage done to the enemy were then insufficient, the battleship would still be there to continue firing, while the aircraft which had not been shot down would have to return to their base to replenish with fuel and bombs or torpedoes.

The situation examined above is not complete without reference to two essentials : in the first place it is implied that the battleship is firing at one enemy ship, and hence that our forces are at least equal to those of the enemy ; and in the second place that the enemy is not hitting our battleship as rapidly as he himself is being hit. This second consideration connotes that our battleship has the assistance of aircraft observation, while we are able to deny this to the enemy.

Aircraft as Accessories to Gunfire

The provision of aircraft observation is probably best met by each ship carrying her own aircraft ; this method ensures that aircraft observation of fire will not be absolutely dependent on the presence of an aircraft carrier, and it is also advantageous from the training point of view. This latter is a most important aspect of aircraft observation, which is highly skilled work. No aircraft crew will be able to carry it out at all efficiently without a great deal of practice, which must be continued after the initial training is completed. They must also have a full knowledge of the working of the gun control system in the ship in order to be able to appreciate the effect of the signals they make.

Gunnery observation aircraft are not restricted to any particular position relative to the enemy in order to be able to operate, as long as they can see properly ; they are also free to manœuvre, and normally work singly, and are hence difficult to locate. As they do not come within range of anti-aircraft gunfire, to deny aircraft observation to the enemy it is necessary to have fighters to shoot them down, and this implies that aircraft carriers must be available to produce the fighters

at any position where action may be joined. The crews of the fighters must have great experience of the positions where observation aircraft are most likely to be found, otherwise they will probably fail to deal with them until too late.

The crews of aircraft to work with the fleet must, therefore, be trained for and continually employed on these specialized naval duties in peace time practices. If they were employed for any other purpose in war it would mean that the fleet would have been deprived of a unit which might well make the whole difference between victory and defeat. They could not be replaced by crews trained in other forms of aircraft work.

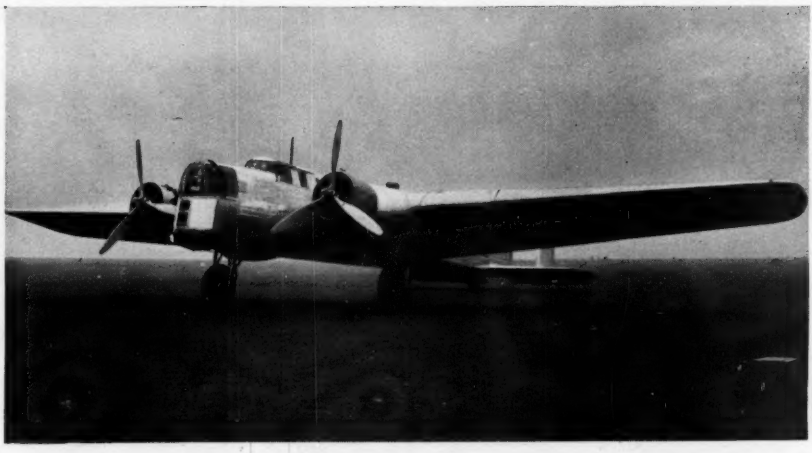
The Effects of Gunfire

Having considered the methods by which hits with heavy gunfire are obtained, and the probable number of these hits, we can now turn to the damage likely to be produced. This depends very much upon what part of the ship is hit, but it can be stated that the damage caused by a 15-in. shell is comparable with that caused by a 1,000-lb. bomb. The bomb contains a greater weight of explosive, but the shell, weighing over 1,900 lbs., will produce larger fragments which will be dispersed with greater velocities owing to the greater striking velocity of the shell. In a comparison between bombing and gunfire, therefore, the sole criterion of damage done is the number of hits obtained, assuming that the chance distribution in the ship of these hits is similar for the two cases. It has been shown that gunfire, particularly when assisted by aircraft observation of the fall of shot, produces a far higher percentage of hits than does any form of air attack, and can also produce a far greater volume of fire. Since with gunfire the percentage of hits is relatively from five to ten times as great as for air attack, the damage done will also be from five to ten times as great for the same expenditure of ammunition. In addition, guns can expend far more ammunition if this is desired, thereby obtaining still more hits. Also, with any form of air attack the casualties are likely to be so high that a few large-scale air attacks, such as that analysed earlier in this article, would cripple any air force in the world.

Conclusion

The problem of attacking enemy warships is essentially one of finding the best method of causing a number of effective explosions in the vitals of the enemy ships. In this article two methods have been considered : attacks from aircraft, and gunfire from ships; and the conclusion drawn from analyses of both methods is that the latter is in every way superior. In order to get the best effect from gunfire,

however, aircraft observation of the fall of shot must be available, and in order to ensure that we may have an advantage over the enemy, we must be able to deny aircraft observation to him. Instead, therefore, of spending our money on building large numbers of bombers with a view to air attacks on the ships of any enemy, let us spend it on ships with which to bring him to action, aircraft to observe our fall of shot, fighters to shoot down his observation aircraft, and aircraft carriers to give these machines that real mobility which shore-based aircraft lack. Then our fleets will be able to operate in any desired area, protected against air attack by their gunfire, and able to meet any enemy ships with a fire better directed, and hence more effective, than that which the enemy can bring to bear against them.

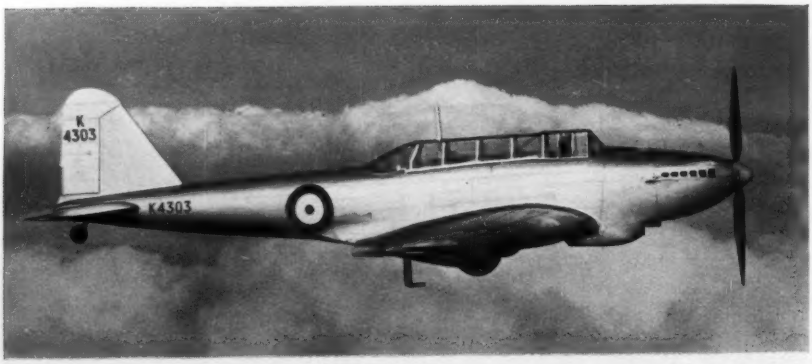


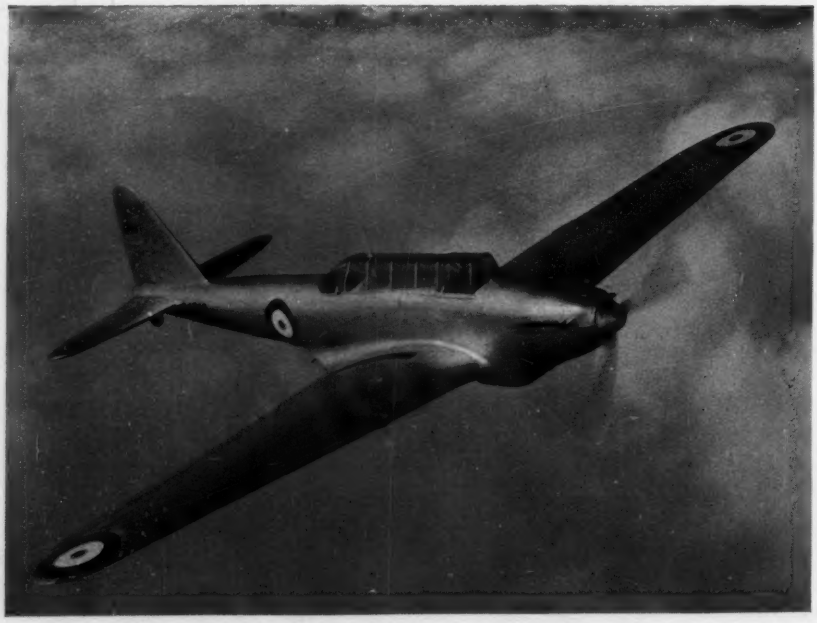
ARMSTRONG WHITWORTH "WHITLEY" BOMBER

HAWKER FIGHTER

THE EXPANSION OF THE ROYAL AIR FORCE
TWO NEW TYPES

Photographs by courtesy of the Air Ministry.





FAIREY "BATTLE" MEDIUM BOMBER

THE EXPANSION OF THE ROYAL AIR FORCE
A NEW TYPE

Photographs by courtesy of The Fairey Aviation Company, Ltd.

THE EXPANSION OF THE ROYAL AIR FORCE

By Air Marshal Sir Cyril L. N. Newall, K.C.B., C.M.G., C.B.E., A.M.

On Wednesday, 18th March, 1936.

Marshal of the Royal Air Force the Viscount Trenchard, G.C.B., G.C.V.O., D.S.O., D.C.L., LL.D., in the Chair.

LECTURE

THE subject on which I have been asked to speak this afternoon is such a wide one that in the time available I cannot do more than attempt to give you a broad outline of the results at which we are aiming, the problems and difficulties involved, and the measures we are adopting to surmount them. As a background against which to measure the expansion I will first give you a brief outline of the phases through which the Royal Air Force has passed since the late war.

When the Armistice of November, 1918, was concluded the Royal Air Force comprised 187 squadrons, with some 3,300 aircraft, 30,000 officers, and 264,000 men. Within sixteen months, by March, 1920, it had been reduced to only 23 squadrons. In 1922, the Government approved an addition of 18 squadrons to the existing 32 then comprising the Royal Air Force, and 15 of these were to be for Home Defence. In March, 1923, the number of squadrons had risen to 36 (with some 3,000 officers and 27,500 airmen), but I would ask you to note that only three of these 36 were allotted for Home Defence at that time. During that year (1923), however, the Government approved what has since been generally known as the Home Defence Expansion Scheme, under which a Home Defence Force of 52 squadrons was authorized. The original intention was that this expansion should be completed by March, 1929, but in 1926, when the Home Defence Force had reached 28 squadrons, the date for completion of the remaining 24 was put back to 1935, formation to be at the rate of approximately 3 squadrons per annum. Again, in 1930, when the Home Defence Force had grown to 36 squadrons, the date for completion of the 52 was put back still further to 1938, but during that year 4 (of which 2 already existed for other purposes) were added to the Home Defence Force, bringing it

up to 40 squadrons. In the earlier part of 1931, 2 more were added, bringing the Home Defence Force up to 42 squadrons. Later in that year a " mark time " agreement was concluded at Geneva, and this process of marking time continued until 1934. As a result of these postponements, the end of the financial year 1933–34 found the Home Defence Force still 10 squadrons short of the 52 approved eleven years earlier. The Estimates for 1934–35 provided for the formation of 2 more Home Defence Squadrons, plus a new Flying Boat Squadron and certain additional aircraft for the Fleet Air Arm. Later in that year, however, in view of the international situation, the Government decided that the 52-squadron scheme was no longer appropriate and authorized the raising of the Home Defence Force from 42 squadrons, as it then stood, to 75 squadrons, in addition to which 7½ squadrons were approved for Overseas Garrisons and the Fleet Air Arm. The expansion was to be completed by March, 1939, that is, in a period of five years.

THE METROPOLITAN AIR FORCE

In May, 1935, the Government announced their decision, in circumstances which will still be fresh in your memory, that it was necessary to effect a further and more rapid expansion than that approved in 1934 and that the immediate objective was to be the creation of a Metropolitan Air Force with a First Line strength of about 1,500 aircraft, or some 123 squadrons. This expansion was to be completed by 31st March, 1937, that is, in a period of less than two years. The overseas squadron and the Fleet Air Arm programme were to remain as in the 1934 Scheme. You will note the term " Metropolitan Air Force " is now used instead of " Home Defence Force," and in order to make quite clear what the present Expansion Scheme amounts to, I must explain that we are not expanding from 42 squadrons to 123 in something less than two years, as would appear at first sight. The 42 squadrons referred to as existing in 1934 were Home Defence Squadrons only, that is, squadrons under the command of the Air Defence of Great Britain, but there were in addition at that time 5 Army Co-operation Squadrons and 5 Flying Boat Squadrons at Home, thus making a Metropolitan strength of 52 squadrons. Therefore the expansion of the Metropolitan Air Force now being undertaken is from 52 squadrons to 123, that is, an increase of 71 squadrons. This meant increasing the Metropolitan Air Force by 137 per cent., and if we measure this expansion against the Royal Air Force as a whole—that is, the Royal Air Force all over the world—the increase is approximately 80 per cent in terms of squadrons, or 100 per cent in terms of First Line strength. We are therefore in process of doubling the First Line strength of the Royal Air Force.

Let us now consider what this involves. Obviously we have to recruit and train the additional personnel, select and complete new stations, secure aircraft and equipment, and organize all into units. Each of these has its own problems of varying degrees of complexity. Taking first recruitment, in which I include obtaining the necessary officer personnel, we have to obtain during the two years some 22,500 additional personnel, of whom 2,500 are to be pilots. I think it is generally known that in the Royal Air Force we cannot provide a permanent career for all our officers, and consequently the number of permanent officers is limited. The remainder serve on Short Service and Medium Service commissions. The permanent officers usually enter the Service through the Royal Air Force Cadet College at Cranwell, where the period of training is two years. The Short Service and Medium Service officers do not pass through Cranwell, but undergo preliminary training at the Royal Air Force Flying Training School, where, broadly speaking, it takes one year to train a pilot. As regards other ranks, the majority of our skilled tradesmen are normally entered as Boy Apprentices, who undergo training as such at Halton before entering the Service. It usually takes three years to train a fitter or wireless operator mechanic, and somewhat less in the case of other skilled trades.

I ask you to take note of the training periods which I have just mentioned, in relation to the period of less than two years in which the expansion of the Royal Air Force approved in 1935 has to be completed.

In order to obtain the required number of personnel, we have adopted two principal measures, namely, extending service of existing personnel and increasing the entries of new personnel. The extension of service of existing personnel was in any case necessary to cover the interim period before the new entrants could be trained. It was also most desirable in the interests of efficiency, since the Service could not carry too high a proportion of newly entered men; and it was equally important in the interests of those already serving that they should be able to take advantage of their prior claim to the opportunities for promotion and extended service arising out of the Expansion.

Extension of service of officers has been applied in several ways. Certain permanent officers are being permitted to serve beyond the normal age limits of their rank. Certain Short Service officers, originally entered for five years on the Active List followed by four years on the Reserve, have been permitted to extend their service to complete six or seven years on the Active List, without reduction of the period of their Reserve service. Again, selected officers now serving on Medium

Service Commissions are being permitted to defer their transfer to the Reserve. As regards other ranks, extension of service has been authorized for many who in normal circumstances would now be passing into the Reserve. All these extensions of Service naturally have to be very carefully watched from the point of view of careers.

This extension scheme is being supplemented in the case of skilled trades by the engagement of ex-airmen in a civilian capacity until such time as the increased entry of apprentices for training produces an adequate flow into the Service. Further, a number of ex-airmen have been re-enlisted on special four-year engagements.

Turning now to new entries, we have increased our intake from the Universities and into the Royal Air Force Cadet College, Cranwell, to meet requirements of permanent officers. We have also launched schemes for increasing the intake of officers on Short Service commissions, while in addition we have a scheme for direct entry of airman pilots. The recruitment of other ranks has at the same time been greatly accelerated.

The response of the country to our appeals has been, generally speaking, satisfactory, and in fact I think I am correct in saying that we have entered new personnel at a more rapid rate than was anticipated when our arrangements were originally framed. Actually we have obtained 15,700 of the 22,500 personnel required during the two years. This includes 1,100 re-enlistments. It also includes new pilots, of whom we have obtained nearly 1,700 out of the 2,500 required. By this I do not wish it to be understood that we have entered all we require. By no means. We still have some way to go. Had it been possible to enter personnel without limit in the early stages of the Expansion Scheme we could by now have had many more than we have actually entered, but you will appreciate that unregulated entry is not practicable owing to the difficulties of accommodation and training. I will refer to the accommodation difficulties presently.

The training problem has been a two-fold one, firstly to expand the training organization to deal with the greatly increased intake, and secondly the problem of training the required numbers by the dates on which the formation of new units was planned. The arrangements imposed a severe strain on all units, particularly as we were unable to devote our entire efforts to the expansion owing to difficulties arising out of the international situation.

I have already mentioned that normally we train our more highly skilled tradesmen at Halton, and the course there lasts for three years. We have, of course, increased our entry into this establishment, and at

the moment the number of boys under training is just short of 2,000—a figure which will steadily expand until it reaches approximately 3,800 early in 1937. The rate of increase of these apprentices and the ultimate figure to which we are working are of necessity regulated by the importance of providing reasonable careers for the entrants. One of the principal difficulties in connection with trade training is that the length of the period required in most trades is little less than the total period available for this expansion. The inevitable result is a tendency for the population under training to rise suddenly to a very high peak figure, followed by an equally sudden fall. Clearly a sudden peak of this description is undesirable from many points of view and greatly complicates the provision of both instructors and accommodation. With a view to easing this situation it has been necessary to establish an additional depot for the training of recruits and an additional school for technical training.

THE TRAINING OF PILOTS

The training of 2,500 pilots within the period available creates an entirely different problem. Working on the old system under which we used to train the Short Service officers and the airman pilots for eleven months at a Service Flying Training School, we should have had to form so many additional Flying Training Schools, some of which would only have been required for one course of pupils, that the problem would have been insoluble. We could not have found the necessary flying instructors, skilled aircraftmen or the requisite accommodation.

A new system has, therefore, been evolved by which the first stage of flying training is given at a Civil Flying School. This system, which, fortunately for us, had been decided upon before the 1935 Expansion Scheme was ordered, has reduced the problem to manageable proportions and has made it possible to spread the pilot training organizations over much broader foundations. We now have 13 Civil Flying Training Schools to which pupils are sent as civilians and there taught to fly during a course of eight weeks' duration. Having passed this course satisfactorily the pupils move on to a Service Flying Training School where they undergo two terms of three months each as Flying Officers on probation. To cope with the accelerated inflow from the Civil Flying Schools we have increased the Service Flying Training Schools at Home from 5 to 10. At the Civil Flying Training School the pupil flies only elementary types of aircraft, and it is not until he reaches the Service Flying Training School that he is instructed on Service types. The pilots being trained under this scheme are Short Service officers, serving airmen who are to become sergeant pilots, and also the newly created category of "direct entry" airman pilot. By the time he passes out

from a Service Flying Training School to a Service Unit each pilot under this scheme should have completed somewhere between 100 and 150 hours' flying. So far this scheme is working excellently, and batches from the Civil Flying Training Schools are now passing on to the Service Flying Training Schools.

Before passing on from personnel problems I should like to mention that our physical standards, which as you know are very high, are being maintained.

STATIONS AND TRAINING CAMPS

I will now turn to the question of finding, acquiring, and completing new stations. I ought first to say that for several years prior to 1934 financial stringency and other considerations limited our efforts to keeping existing stations in repair, and the acquisition of new stations remained in abeyance. One consequence of this was that we were still 18 stations short of the number required for the 1934 scheme when the 1935 scheme, which itself entailed the finding of 31 additional stations, was announced, so that we had the task of finding a total of 49 new stations. Now, I would like to explain that you cannot choose any large field and hope to convert it into an air station. First of all the stations must be sited with reference to the requirements of the general strategical plan. Further, in determining the actual site, the topographical features and meteorological conditions must be taken into account, for it would be futile so to site a station that its aircraft could operate only in certain conditions of wind and weather. Again the marked increase in the size, weight, and especially in the speed of modern aircraft, demands large aerodromes with clear approaches and surfaces which can withstand heavy wear and tear in all weathers. You will appreciate therefore that many of the war-time aerodrome sites are quite useless when viewed in the light of modern requirements, and indeed the number of suitable sites is really very strictly limited. Apart from other aspects, quite a number of otherwise suitable places have been rendered unsuitable or dangerous by the overhead electric grid cables with which the countryside has been extensively networked during recent years. Consequently the task of finding suitable stations now is extremely difficult, and you would be surprised at the very large number of possible sites which have to be rejected for one reason or another.

On top of these normal difficulties a further complication is introduced by the very short time in which the 1935 Expansion Scheme has to be completed. In ordinary circumstances we found it necessary to put in hand the acquisition of land and the erection of buildings, etc., not less than 4½ years in advance of the date by which we wanted to

take over the station for Royal Air Force use. This was because land acquisition formalities took about nine months, while the subsequent operations of erecting buildings, levelling and preparing the aerodrome and otherwise completing the station, required a period of not far short of four years. Obviously this procedure would not meet present requirements. We have, therefore, had to begin an intensive further search for new sites in the predetermined areas, and in making these searches to try to find sites which are as far as possible ready-made, especially as regards aerodromes. This is a very difficult task, but I am glad to say that we are making steady progress. As regards preparing the sites for Royal Air Force use after they have been found and acquired, the time available to us would not permit of the erection of permanent buildings, etc., and in any case it happens that the 1935 Expansion has coincided with a period of activity in the building trade which has produced a shortage of skilled men, especially for service in the remote districts where Royal Air Force stations are usually located. We, therefore, had to resort extensively to temporary huts and buildings so that squadron requirements may be met until such time as permanent accommodation can be erected for them.

My remarks, hitherto, have been directed mainly towards finding normal stations for the accommodation of one or two squadrons. These squadrons must, however, be exercised in their operational functions—for example, bombing. The difficulty of finding suitable sites for armament training camps presents an even bigger problem, and generally speaking it cannot be said that we are welcome visitors wherever we go. You will appreciate, of course, that a large danger area is required where we carry out live bombing and machine-gun practice at targets on the ground or targets towed by other aeroplanes in the air. Such large areas are an inconvenience, quite apart from the noise of the bombing or firing, but we always do our best to select isolated districts and to meet the requirements of the local residents and interests to the fullest possible extent. There is a scarcity of suitable sites inland, and consequently we have to go to the seashore. But despite our endeavours to find suitable isolated districts, complaints are made that we spoil the natural characteristics of the neighbourhood, adversely affect fishing and other interests, and disturb and drive away wild fowl which inhabit these lonely stretches of unfrequented coast. We are, however, charged by Parliament to increase the Royal Air Force and provide for its training to make it a fully effective arm and, therefore, we must find the stations and training camps. Despite all that has been said to the contrary we are not people who disregard the beauties and historic interest and tradition of the countryside, and we have always gone and will always go to the utmost limit to reduce as much as possible

the disturbance to national life which must follow in some measure from carrying out Parliament's instructions.

AIRCRAFT AND EQUIPMENT

I come now to the question of providing the necessary aircraft and equipment. I will begin by explaining that normally our needs are met by a group of firms who manufacture airframes and aero engines. Behind these are a large number of other firms, many of them in a small way of business, who provide the thousand and one items of equipment and armament which necessarily go to the completion of the aeroplanes and supplying the squadrons with everything that is required for use in modern conditions of warfare.

For many years past the hope of agreement about disarmament, and also financial stringency, have severely limited the orders that could be given to this industry and its allied trades and inevitably their capacity had steadily dwindled. I should also mention that during those lean years we had to try to get quality rather than quantity for our limited expenditure of money.

Our system of selecting aircraft for the Service involved an extended series of development trials and tests. In the first place we prepared a specification describing the kind of aircraft required, its functions, performance—including speed, range, carrying capacity, etc. This specification was issued to the aircraft firms and they were invited to submit their proposals for meeting these requirements. When the designs submitted had been examined, orders were placed with two or three of the firms for each to produce one or two prototypes. These prototypes appeared a year or so later and they, together with other prototypes to the same specification which might have been put forward by other aircraft firms as private ventures, were tested in a kind of competition. As a result of this we chose one or two prototypes which came nearest to meeting our requirements, and the makers were given a small order for the production of aircraft to that design sufficient to equip one squadron. These aircraft became available some nine months or a year later and, after delivery to a selected squadron, development tests with them went on for a period of one year. If the results were satisfactory, at the end of this period production orders were placed for sufficient machines to equip further squadrons with this type, including any alterations or modifications shown to be necessary at the development period. All this was very thorough, and indeed sometimes very necessary, but resulted in aircraft being out of date by the time they became available for general use in the Royal Air Force. This system was totally inappropriate for an Expansion Scheme of the present

magnitude which had to be carried out within a very limited period, and in any case we had at that time very few really modern types tested and available to be put into production.

On the other hand, there had been several recent advances in aeronautical science and design sufficiently developed for incorporation in Service aircraft. I do not wish to go into technical details, but would refer briefly to such things as the retractable undercarriage, which can be drawn up in flight so that it offers little or no head resistance; the use of flaps, which are air brakes enabling landing speed of aircraft to be kept within reasonable limits even though normal flying speed has been greatly increased; the variable pitch airscrew which enables the best use to be made of engine power in taking off at full load and flying at various heights. Again there has been a drift from the biplane design with its interplane struts and wires to the monoplane design, which lends itself to cleaner lines and reduction of head resistance. Naturally we did not fail to take advantage of all these advances, and it was indeed fortunate in some respects that the expansion was not decided upon a year earlier. We are, in fact, making full use of the latest ideas, and we have achieved this first by revising the old system and reducing roughly by one half the time required for getting new types into the Service, and in addition to this we have felt justified in taking a certain amount of risk in ordering some types before they had been subjected to the usual programme of tests. The risks are proving to be fully justified and several new types have already flown and shown remarkable performance. So much for new types.

Now as to the problem of getting them produced in sufficient numbers. I have already told you that the capacity of the industry had diminished during the lean years, and you will realize, therefore, that when we suddenly asked that industry to produce aircraft, aero engines, and equipment on a scale of which they had previously had no experience in peace time, the problem presented was large. Despite this we decided to rely on the professional industry to meet our requirements, and to expand in process of doing so, and I am glad to say that, generally speaking, they have responded very well indeed. Naturally it takes time to expand their organizations and to achieve that production rate which is necessary to meet these requirements, but the flywheel of production is now running smoothly and is accelerating. The industry has been faced with very serious difficulties, the principal one being the acquisition of skilled men and machine tools. There has been a great dearth of skilled men, and as regards tools and materials you will understand, of course, that the trades which produce those have also suffered from diminished capacity which must be increased again to meet present demands.

ORGANIZATION OF UNITS

I now come to the fourth of the sub-heads into which I have sought to divide this lecture, that is organization into units, which involves dovetailing together personnel, their accommodation, and their equipment.

The extent of the expansion and the limited time in which it has to be completed has made it inevitable that the majority of the new units will be formed in the latter half of the period, and this will be clearer when the time involved in finding personnel and new stations, and producing the machines and equipment is considered. By far the greater part of our initial effort has had to be devoted to extending training facilities, recruiting personnel, finding accommodation for them and acquiring the necessary training aircraft. In the early stages we worked out a programme for the formation of new units, but there were so many uncertain factors involved at that time that naturally this programme was of a very tentative nature.

The principle on which we propose to organize is a station basis; that is to say, there will be a Station Headquarters which will administer two or more squadrons located there. The advantage of this will be to pool the various resources, such as transport, workshop facilities, and stores, so as to relieve the actual units of a great deal of administrative detail and to leave them more free to carry out their training and operational responsibilities. Broadly speaking, the method we are adopting in forming new units is to require an existing squadron to throw off one of its flights. This flight then becomes the nucleus of a new squadron, is given a new number, and commences to organize itself as an entirely separate squadron while, however, remaining for a period on its original station under the guidance of that station's organization. By the time this embryo squadron moves to its new station it will thus have created the nucleus of its own organization and will have collected most of the paraphernalia, publications on store-keeping and accounts, technical matters, and administration generally, etc., etc., which are essential to every unit. The new squadron is equipped with aircraft, sometimes of the same type as that of the parent unit and sometimes with a later type, and in certain cases training is being carried out for conversion from one type to another. Several months may elapse before one of these embryo squadrons is expanded to two or more flights and the period depends on how soon personnel, equipment, and accommodation are available. The waiting period is, however, used to the full because, if the initial formation of new units was deferred until everything was fully ready, the formation would have to be deferred until the latter half of the expansion period, and the

resultant administrative burden would be so heavy as to be quite beyond our resources. A further advantage of this system is that personnel and equipment can be disposed of at once upon becoming available. At a later stage the original parent squadron may be required to throw off another flight, and a newly formed squadron may in certain cases be required to throw off a flight, in each case to form the nucleus of another new unit.

There are many other types of units which have to be created apart from actual squadrons ; for example there are Headquarters formations, storage depots, practice camps, etc.

FURTHER EXPANSION

It remains for me to add a word about the further expansion which has been decided upon within the last few weeks as a result of the considerations set forth in the Government's White Paper on Defence (Cmd. 5107) issued in March. I have deliberately refrained from mentioning this further expansion at an earlier stage in my lecture so that I might first describe to you the implications of the 1935 Scheme.

Under the latest proposals, the Metropolitan Air Force will be substantially increased both in numbers and in striking power. Although the number of squadrons will only be increased from 123 to 129, increases of establishments within certain of those squadrons will result in the First Line strength being raised from the 1935 Scheme figure of 1,500 to approximately 1,750. The number of squadrons for service overseas will also be raised from the present figure of 25 to a new total of 37 ; and in addition the Fleet Air Arm will be very substantially increased. At the same time, the aim is particularly directed towards building up our reserves of men and material. In the words of the White Paper, the provision of air forces will not avail in war unless they are given the means not only to fight but to continue fighting. In addition, therefore, to creating adequate reserves of personnel, we aim at laying up sufficient reserves of machines and equipment to meet war requirements, until such time as the reorganization of industry on a war footing can produce the enormous supplies necessary to go on meeting war wastage.

The 1935 Scheme will be substantially completed by March 1937, and although a certain amount will be done towards implementing the 1936 Scheme during that period, the majority of the provision required under that scheme will of necessity take place after March 1937.

I have told you that under the 1935–37 Scheme we decided to rely upon the professional industry and its allied trades to produce the aircraft, engines, and equipment required. It is clear, however, that the industry, even on the basis to which it will have expanded in process

of meeting the 1935 requirements, will not have reached a capacity which would produce immediate requirements on the outbreak of war and until such time as the other industries of the country had been organized to assist. In connection with the 1936 Scheme, therefore, the Government has taken the view that we should arrange in peace time the formation of a "shadow" armament industry; this could undertake work now, more or less on an educational basis, so as to prepare for their future role of assistance in the event of war. At the same time it was decided to arrange this with the minimum of disturbance to the peace time activities of the selected firms. Accordingly, a few selected firms, including certain motor-car manufacturers, are being invited to erect, equip, and staff (with Government financial assistance) production units for the manufacture of aeroplanes and engines. These units will be additional to, and entirely separate from, the peace-time equipment and activities of the firms. These arrangements are going forward with all speed and they will form an addition to our resources which will be of great use in connection with the 1936 Scheme, as well as being of inestimable value in the event of war. The 1936 Scheme necessarily involves increasing not only material but personnel also and we shall also require a small number of additional new stations. The finding and training of the additional personnel and the acquisition and planning of the new stations required will be met by the continuance of the methods which I have already described in the 1935 Scheme. I had intended trying to give you some comparison between the expansion rates to which I have referred above and the expansion rates during the war. On reflection, however, I have come to the conclusion that conditions and circumstances are so different that there is no basis on which a useful comparison could be made.

In conclusion I can say with full confidence that when these expansion measures have matured we will have an Air Force which in good heart and equipment need fear no comparison.

DISCUSSION

LIEUT.-COLONEL A. G. ARMSTRONG: Would the Lecturer say what he means by the word "Metropolitan" in the expression "Metropolitan Air Force"? Does it mean the same as "Home Defence" or has it some more ample meaning?

ADMIRAL THE EARL OF CORK AND ORRERY: Does the Metropolitan Air Force include the five Army Co-operation Squadrons of which the Lecturer spoke? With regard to the mechanics, I am not quite clear whether the Royal Air Force has a certain enlistment of mechanics straight into the Service? I should imagine that they would be very difficult to obtain now, and will not there be great difficulty when the expansion takes place? There will be a tremendous expansion in the numbers of machines, and, as I understand it, the training of the apprentices to

come into the Service as mechanics will just about have been completed as the full complement of machines is reached, so that a great deal of the mechanical work will have to be carried out by these young men who have just come from the training college. Cannot men be obtained straight from the shops ashore in civil life, and, if so, is that being done.

FLIGHT-LIEUTENANT M. H. G. ARNOUS-WILLIAMS: I should like to ask the Lecturer how the shortage of Flight-Lieutenants is to be made up.

THE LECTURER:

With regard to the word "Metropolitan" as compared with "Home Defence": the expression "Home Defence," as used originally, referred to units definitely under the command of the Air Defence of Great Britain, which was the Home Defence Force. At that time, this force was taken as the yardstick, so to speak. Later on the word "Metropolitan" was used to indicate all first line operational units shore-based in the United Kingdom; these included the Flying Boat Squadrons and the Army Co-operation Squadrons; of which there were then five of each. With reference to the question of the mechanics, it is extremely difficult to obtain sufficiently skilled men direct from the open market. We get a good many semi-skilled men, whom we train at our training schools. The majority of the boy apprentices we are taking in now will not be available until the expansion scheme is completed. We are keeping on men who would otherwise have gone out and we are re-enlisting those who have already gone out, hoping thereby to obtain a balance of skill as between the older men who know their work and the new entrants who are not so proficient. With regard to Flight-Lieutenants, there is an acute shortage, and I think the step taken to meet that should be earlier promotion to this rank.

THE CHAIRMAN:

We have had a very interesting lecture this afternoon. Though I could not altogether agree, perhaps, with the Lecturer's opening remarks, in which he said that we could not give a permanent career to all our officers, I feel we are just the same as other Services in this connection, although not recognized by all. With regard to the expansion programme as a whole, it is really a colossal task. In 1923 there were three squadrons for home defence, and now we are talking about 129. I ask the naval officers and army officers present to consider what the carrying out of such a colossal task involves. For instance, it is very easy to talk about speeding up training. While we are at peace it is impossible to make the training any less thorough than it is to-day; that would be fatal to the morale of the Force. The two other Services know full well how difficult it is to train men in technical work in a short time. Judging by the recent speech of the Secretary of State for Air and the lecture we have just heard, I think we may say that those who are carrying out this task of expansion are doing so most effectively. It is a very difficult task. I should like to take this opportunity of congratulating the Lecturer and thanking him for having given us such a clear account of what has been done, and of what is being done, and the difficulties of the task, which he has minimized to a great extent as I knew he would.

The customary votes of thanks to the Lecturer and Chairman were carried by acclamation.

A JUNIOR SCHOOL OF TACTICS AND LEADERSHIP

By Captain E. R. Mahony, Irish Guards.

IF a civilian, or foreign critic, were to turn to page 920 of our Army List, he would in all probability be impressed by the comprehensive list of military schools which he would find enumerated thereon. The number and variety of these institutions must cause him, at first sight, to reflect upon the thoroughness and breadth of training which the officers of the British Army are fortunate enough to have at their disposal. Should his interest in our military system, however, lead him thence to delve within the covers of Training Regulations, 1934, he would encounter on page 2 of that manual, the following words: "In order to meet the conditions which would then prevail, all officers and N.C.Os. must be fitted in peace to fill appointments in war considerably higher than those which they normally hold." And again: "The efficiency of an army depends on the efficiency of its leaders." These sentences might cause the avid seeker to pause here, and then retrace his steps to the Army List, because their importance not being lost upon him, it would be natural for him to scan the lists afresh. This time the object of the search would be to find that school wherein officers were taught something of the art of leadership, and were prepared by experts to fill those higher commands which they might be called upon to assume in an emergency.

We are going to assume, at the outset, that it will be generally agreed that neither the Staff College nor the Senior Officers School, can be put forward as institutions which fulfil the requirements envisaged by our title; for we visualize a school open to all junior officers, of the Infantry at least, and of a grade and status analogous to the Small Arms School. Since, then, our concern is entirely with the junior officer, let us examine his case as we find it to-day, from the moment when he joins his regiment. When a young officer of the Infantry joins his regiment, his tactical training is supposed to begin, and it is entrusted to the hands of other regimental officers whose qualifications for carrying it out have never been tested, and may or may not be high. It will consist for the most part of a few lectures

annually, interspersed with some elementary sand table exercises; a modicum of military history, probably with a regimental bias; and finally, of perhaps four weeks practical work in the handling of a platoon on training, of a possible strength of eighteen men. Such, very briefly, are the tactical milestones in the average young officers "annual round," and the cycle is one which he will be called upon to perform for a considerable but indefinite period of years, unrelieved by any further excursions into the ramifications of the military art. Towards the end of this long and somewhat enervating experience, and when already within the orbit of middle age, the erstwhile young officer may find himself at times in command of a company on training; but what, it may be asked, has transpired in the interval, other than monotonous repetition, to render him, "fitted in peace to fill appointments in war considerably higher than those which they will normally hold"? The command which he will normally hold will be that of a platoon, whereas from the expression "considerably higher," we must infer that he should be competent to lead a battalion on active service. Quite early in the young officer's career his training under regimental auspices will be interrupted, in order to enable him to attend a long qualifying course at Hythe, under the tuition of experts; and throughout his early service, at varying intervals, he will probably receive further instruction from experts on such divers courses as physical training, education, hygiene, and cookery. Now if we take the sum total of the elements of tuition just mentioned, can we equate them with the dicta as set out on page 2 of Training Regulations, 1934? In other words: will the above-mentioned subjects, useful though they may be, help the young officer much to train his brain to work flexibly and rapidly amid the strains of the battlefield; will they help him to size up a situation and a country at one glance; to instil confidence into others from the reserves of that quality, born of knowledge, which he himself must abundantly possess; will they teach him to be crafty, agile, resourceful, and sly, instead of being commonplace, blatant, and slow? It is such questions as these which will require answering on the day of action, and if they cannot be answered successfully the consequences may be far-reaching.

This brings us now, to another no less vital question, which intimately concerns the young officer of to-day. Amongst military writers of our time there is constant and insistent reference to the "strain of modern war," which is a state brought about largely by the rising tempo which characterizes military operations in an age of mechanical advancement. Since the subject is one which bears fully upon the human elements, we may ask ourselves whether the existing system for training young officers is in harmony with the requirements of modern times. It is a fact which will hardly be disputed that the average man's physical

powers begin to decline at about the age of forty-five, while his mental ones may be said at that age to have reached maturity. If we concede another five years even, and retard the point of declination to fifty, we may say that, speaking in the sense of modern military requirements and thought, an officer will have reached middle age at between twenty-five and thirty. Under our present system, therefore, he will arrive at the threshold of his military prime, enter it, and pass through it, without ever having undertaken the command of anything bigger than a company, if even that. His period of maximum utility—mental and physical, will therefore have been squandered year in year out, in unvarying repetition of the most elementary tactical exercises, which present no difficulty in their mastery to some of the most backward and primitive peoples which inhabit the universe. Now we do not suppose that all or any of these statements will be allowed to pass unchallenged, so we shall prepare without further delay, to anticipate the direction from which counter-attacks may be launched. It will be maintained firstly, perhaps, that a young officer's tactical training is largely a matter which concerns himself, since the tactical training which he receives from other officers in the regiment is not supposed to be complete, and he is expected to make it so by private study; that is to say, by reading. Secondly, we will be reminded that there exist such things as promotion examinations, which serve the double purpose of ensuring that officers do study, and of satisfying the authorities that their knowledge of military subjects is quite adequate. We are not going to dismiss the first contention merely with the retort that, if the procedure mentioned suffices to inculcate the most vital of an officer's requirements, then it must be superfluous to maintain a school for the purpose of teaching him hygiene, since he can equally well learn this in his regiment, and from print. Such a reply might savour of speciousness, so we must examine the claim a little further before dealing with the question of promotion examinations.

What methods of self-education are at the young officer's disposal, other than a capacity for reading military history and the Field Service Regulations? Reading is in itself an art, and one without any medium of expression except in an abstract and academic way; though pursued with industry and intelligence its values cannot possibly be assessed unless forced into the light of day by means of practical illustration. In fact, its utility is extremely dubious unless the reader has acquired the habit of reading critically; and the ability to do this depends upon the knowledge, imagination, and powers of concentration of the individual. It is easy enough to master narrative, but this is of little use if the student, as all too frequently happens, lacks the analytical powers by which alone he can extract the goodness from it, and is starved of

opportunities for putting his learning to a practical test. The claims made for promotion examinations do not appear to put the young officer in any better case. When he is confronted with a promotion examination, he frequently considers that the tactical paper is the rock upon which he is most likely to founder. To acquire, therefore, the comparatively elementary knowledge necessary to pass this paper, he betakes himself to the only source where, rightly or wrongly, he considers he can obtain it ; that is to say, he goes, not to a military but to a civilian institute. From this establishment he is fattened on a diet of potted tactics, for which he is charged a fee he can with difficulty afford, until after some months of extreme discomfort, with feelings of indescribable relief, he disgorges his ill-digested learning into the lap of his examiner.

Now if there is any fault in this argument *per se*, we cannot allow that there is any fault in stating it ; for it is undeniably true that young officers, and others not so young, do post their cheques to civilian institutes in exchange for a superficial grounding in the elements of their profession. There is adequate proof of this in the number of coaching institutions which exist, and if one is to believe the figures shown in their prospectuses they certainly do not suffer from lack of patronage. Before finally dismissing these twin questions of private study and promotion examinations, we shall try and arrive at a more precise estimate of their value by following a better marked route than that of mere speculation and verbal controversy. If we wish to estimate their values as aids in acquiring tactical knowledge and solving tactical problems, we can hardly err if we examine them in conjunction with the making of a tactical plan, since the plan is the point towards which all forms of tactical training must logically converge. Field Service Regulations, Volume II, tells us : " The will of the commander, whatever his position in the chain of command, is expressed by his plan. To be effective, the plan must be conceived in accordance with the established principles of war, and be within the possibilities of available resources : it must be clearly explained, developed with imagination, tempered by reasoned judgment, and carried out with resolution, intelligence, and adaptability." We see, therefore, from this quotation, that the successful plan is born out of a subtle combination of the following powers, working in harmony in the mind of the creator : lucidity, articulation, imagination, sense of values, circumspection, resolution, intelligence, and flexibility of mind. A truly formidable set of concomitances to be nourished on reading to such an extent that they can be depended upon to function instantly and correctly at the bidding of the will, and in the face of the enemy.

At what stage in his career does the young officer in our Army get adequate opportunities for developing and exploiting all or any of these qualities, assuming that he possesses them in latent form? He works at infrequent intervals on a small and perhaps ill-equipped sand-table, and now and again on the ground, but the plan he will be called upon to produce, over and over again, will be that for the employment of a platoon or company: formations whose field of action is so limited, and which are so unencumbered with administrative appendages that their successful manipulation places no tax whatever upon his mental dexterity or equipment. His mind therefore slumbers in indolence and peace while his most vigorous years roll by, until, by the aid of his moral rather than his mental qualities, he may, after twenty years, find himself in the running for the command of a battalion. The making of the plan is now liable to reveal itself for the first time in the guise of a terrifying and laborious undertaking. A variety of new arms suddenly appear upon the scene and have to be co-ordinated; administrative questions crowd the hour and clamour for a hearing; mechanical devices run up the tempo; forecasts and calculations interpose themselves at every turn. When the plan eventually emerges it does so in the form of an imposing document, which contains no less than six main headings which in turn nurse a brood of some twenty explanatory paragraphs; as indeed they well may do, considering that within them is written the immediate fate of more than one thousand men. To meet the new demands which are suddenly thrust upon him, the now ageing officer—still gallant and undismayed, is sent, at the age of forty, once more to school. That he proves equal to the occasion is not, perhaps, a little remarkable, but it is more profitable for us to consider if he might not prove vastly superior to it, were he given an opportunity to learn his work ten or fifteen years earlier; and that without any detriment to what is called "regimental experience." It is granted that experience cannot usually be acquired except with age, but we cannot admit that this is in any way incompatible with a proper study of the science of war—a field in which youth always has been, and will continue to be, predominant.

We shall endeavour now to sketch, however inadequately, the lines on which we think a school of tactics might be run for the purpose of helping the young officer. The course might be devoted to the twin subjects of tactics and military history. The tactics would follow the general line of the methods now in vogue, but we would wish to see the sand-table somewhat revolutionized. Since the guiding principle in sand-table construction is, presumably, to try to capture realism, we should begin by ensuring that it would be of sufficient size, in order that the mind may not become parochial in the contemplation of an area in

which there is barely room for a company to manœuvre. The student should be encouraged to take the " long view," and one way of assisting him to do so is to give him a long table. The table might, therefore, be made to represent a stretch of country fifteen miles long by four miles wide, at a scale of, say, six feet to the mile. It should be in two portions with a narrow passage dividing them, to allow all parts of the table to be reached by the hand. Every feature should then be properly depicted, since the powers of the student's imagination will more profitably be employed in connection with his troops than in trying to persuade himself that a piece of green tinsel on a solitary match stick represents the Black Forest. A wood must be a wood, and a hedge a hedge—faithful as regards height, density, and bulk in relation to the scale, and reasonably consistent in form and material with the laws of nature. The opposing forces are a matter for arrangement, but we suggest that on one side at any rate they should represent in the utmost detail, and by means of tin soldiers, at least a complete brigade with attached troops. Everything, from the Brigade Commander downwards, should be represented, even to the picks and shovels, and should appear on the table in exact accordance with war establishment tables. This should apply not only to the infantry battalions, but equally to artillery, cavalry, vehicles, W/T cars, etc. Were every soldier in each battalion detached and separate, the difficulty of moving this mass would of course prevent its use and entail too much delay, but this difficulty could be almost entirely surmounted by arranging the tin soldiers in section, platoon, or company blocks, to the bases of which the soldiers would be permanently fixed ; the blocks in turn should be made to interlock by means of a dovetail joint or similar device, so that a battalion can easily be put into column on the road, or broken up, if deployment is desired. Over and above these fixed blocks, a few single men should be available to represent scouts or runners, but many should not be necessary since our principal object would be to renounce the contemplation of scouts' posteriors and aim at the development of the student's full mental resources.

There are several other devices which we think might be resorted to. The soldiers, for instance, should have some distinctive colour to show their battalion, and should carry the number of their company. They need not be more than one inch high, if all heights of hills are exaggerated fourteen times, which would not be excessive. The table itself should be rigged with a vertical screen, and moveable covers operating from each end towards the centre. At the commencement of the exercise the screen would be lowered, so as to shut off the table into two portions at the centre ; each commander would then have a view over five miles of country, but would not be able at this stage to discover the enemy's

dispositions. When both are ready, and before the screen is hoisted, the covers would be run forward from each end towards the middle until they exposed no more than one mile of the opponent's territory. The scheme would then begin, and the covers be gradually withdrawn by the umpire as operations progressed. The commanders and their subordinates should be seated at a level from which they cannot obtain a vertical view over the enemy's country, and so cannot get information except by fighting for it. A system of marking could also be instituted, whereby a commander would be awarded or deducted marks, according to the ability shown, the soundness of the tactical and administrative dispositions, the time taken in making the plan, and so on. Besides the commander, jobs could be found for others in the roles of Brigade Major, Staff Captain, Battalion Commanders, etc. Training in the use of the map might be advantageously combined with the table, by issuing maps beforehand which correspond with the topography of the table, and making the student form his plan in the first case from the map.

In teaching military history, the principle of a debating society might be followed with advantage. For example, the battle of Tannenberg—by far the most interesting and pregnant operation of the Great War—would provide a wealth of material for discussion and sand-table illustration. The student might be invited in this case to prepare and deliver a verbal opinion, with reasons, as to which of the following factors in his estimation contributed most to the German victory : Colonel Hoffman's plan for switching the German forces from the East to the South-East ; General Rennencampf's lack of enterprise in the North ; the German railway system ; the Russian plan ; Samsonov's difficulties ; General von François's line of march, and so on. A large sand-table model of the terrain of Tannenberg, well equipped with troops to represent both armies, and containing a replica of German strategic railway system, could not fail to prove most instructive and interesting.

Such, briefly, is an outline of the way in which a junior school of tactics might be run ; it is suggested that the need for such a school finds its most insistent and redoubtable advocate in those sentences from Field Service Regulations, which enumerate so succinctly the mental qualities which determine the making of the successful plan. Those qualities must, in the nature of things, acquire an increasing importance in the wars of the future, when, on account of the multiplicity of modern weapons, the speed with which operations may be conducted, and the difficulties of maintaining control, the qualities of a first-class commander will need to be diffused among all. The proper cultivation of mental power therefore becomes a matter of the first importance, since the sword is the servant of the mind.

In taking the brigade as the model for the young officer to work on, we know that we lay ourselves open to the obvious retort, too blatant to require stating; but our object is not only to teach tactics as such, but to train and develop the mind on broader lines, to oil its workings, and to rescue it, while young, flexible, and vigorous, from a wilderness of puerilities in the form of an eternal round of bending exercises, second pressures, and cookhouse odours. This can never be done in the handling of a company, either on the sand-table or off it, nor with any force which is not composed of all arms. The brigade on the other hand is a formation in the handling of which a young officer has plenty of scope to display such ingenuity, circumspection, resource, and intelligence, as nature has endowed him with, or as under expert guidance, he may acquire. From a study of it he can learn to think broadly and see far, to burnish his powers of imagination, and to tone up his whole mental process.

With the coming of mechanization, the cultivation of mere brawn and muscle must necessarily become of diminishing importance for all ranks in the Army. Correspondingly, the need for better and quicker thinking must grow more compelling and stand in inverse ratio. If war is an art, then its successful prosecution must follow the rules which have guided the exponents of all the other arts; and those may be said to be—start young, find a master, and follow his precepts.

THE OFFICERS TRAINING CORPS JUNIOR DIVISION

By "TECHA."

THE Officers Training Corps has been having a poor time just lately: it has been arraigned by the pacifists for making war seem a game, and turning our children into little militarists before they have reached years of discretion; it has been derided by a popular journalist for giving military training as out-worn as archery, because it does not practise anti-aircraft gunnery in gas-masks; perhaps more serious—it has seen its meagre grant cut, and stringent age limits imposed to gratify a certain political section, and, later, for economy. Only last August it was attacked in *The Times* by one it would fondly have supposed to be its friend—a Colonel (T.A.), because it does not make "the game of soldiering" sufficiently attractive and so is, aparently, responsible for the shortage of Territorial Officers. This letter dealt exclusively with camp. The improvements he suggests, namely that each boy should know what is going on, that there should be no drill parades, no buttons to clean, no fatigues, food at least as good as the boy gets at school, and a tremendous lot of general heartiness about what a splendid "game" soldiering is, rather lose their point when it is realized that, with the exception of the last two, they already form part of the conditions of an O.T.C. camp. Except on the very rare occasions when the regular officer presiding has a conviction that these schoolmasters talk too much, and that he wants to see the boys doing something, everything is most carefully explained to all ranks, before it is done, and there is usually a post-mortem afterwards. There are no drill parades. In warm weather all parades are in shirt-sleeves, and so there are no buttons to clean except perhaps for Church Parade. There are no fatigues, except for the necessary work of the mess tents. It is true that the food is not as good as it usually is at school, and that the type of heartiness the Colonel desires is very rare, as well as very unpopular at our greater Public Schools; but otherwise there would be little enough to complain of, if the Army would only realize that boys who have not lived under canvas before and are used to the comfort with which the regular officer is familiar in his own home, and to no other standard, cannot

live in reasonable comfort on the allotted scale of eight to a tent, without any allowance being made for house divisions and other such things that often loom very large in school life.

" Chita," in his article in the JOURNAL,[1] criticizes the lines on which the Junior Division is run, and ignores the influence and even the existence of camp. Moreover, though, perhaps he is not quite so uncertain of his facts as our gallant Colonel, who admitted that he had had no personal contact with the O.T.C. since he donned a scarlet tunic in his School Volunteer days, " Chita " seems to me to be very often quite wrong in his statements and rarely very helpful with his remedies. First as to finance: as he says, the grant for each Cadet over 16, returned as efficient, is £1 1s. His value does not increase to £2 when he gets Certificate " A," but a single donation of £1 is made for each Certificate " A " obtained. Until recently, £9 was given to the School O.T.C. for every ex-Cadet who took a commission other than a regular commission, and this was a very great help to the funds of such O.T.C.s as were in fact being successful in training officers. This grant has now been stopped for reasons of economy. But " Chita," in discussing finance, makes no mention at all of the contribution of the parent, who pays for the uniform, pays the boy's expenses in camp, and contributes a subscription every term, which, though it varies at different schools, is, I imagine, usually as big as or bigger than the Government grant. Nor does he mention that the officers receive no grant at all, except the pay of their rank for their eight days in camp. These facts often seem to be kept rather in the background when the War Office is thinking about the O.T.C.; but they are not without importance, and should affect the official attitude. If one considers what they pay and what they get, I can state confidently that the O.T.C. is the most inexpensive show that the Army has ever run. " Chita," however, only brings in finance to make the obvious point that the work of a School O.T.C. would be financially crippled unless the great majority of the boys belonged to it. He is rather plaintive about this, because it supplies an additional motive for putting pressure on boys to join. One wonders if he really wants to return to the true volunteer days of the " Bugshooters," before the South African War, shall we say. These men were enthusiasts, even martyrs, but when one meets them nowadays they usually seem to think better of the results achieved by our present system than of those of their boyhood. Does it not seem more reasonable to rejoice that the spirit of a Public School, not to speak of the herd instinct of the young male, makes it well nigh impossible for a normal boy to refuse to undertake

[1] See " The Officers Training Corps " in the JOURNAL for August, 1935, p. 540.

his military training and even to do his best at it, without the question of compulsion being raised in one case in a thousand? Work is not voluntary, nor, in many cases, are games. Military training is regarded as a normal part of school life, and boys accept it without any fuss. The fuss comes from outside.

"Next," says "Chita," "must come the sugaring of the pill—making O.T.C. Service worth while." I should have thought that the sugar would have been the interest aroused and the fun to be extracted—and boys may be relied upon to extract all there is, and some of their officers to help them—and not the worthwhileness, which includes the larger question of the value of the pill itself in its effects on the taker. Anyway, "Chita" points out that O.T.C. officers nowadays do not often have war service. When they had, "they were sufficiently highly trained to be capable of running, intelligently, tactical exercises, both sand-table and out-of-doors." As for the intelligence, we need not worry about that over-much with schoolmasters, as the intellectual qualifications required for entry to their trade are always higher than those required for entry into Sandhurst. As for the high training, I do not know what war experience "Chita" had, but my own four and a half years, at home and abroad, ten months of it in the ranks, while it certainly supplied me with all the personal anecdotes I could require (and perhaps more, for they often waste time, and did not go down at all well with the immediate post-War generation), gave me remarkably little practice on a sand-table. Nor was experience in the trenches very much like the situations described in the latest Certificate "A" paper. It is possible, however, for a man with war service and with intelligence, which we may postulate, to have watched, and read, and learnt during these sixteen years, just as the regular officer has, and so not to be as out of date as "Chita" imagines, while he retains that feeling of self-confidence which is the one great legacy of having seen the real thing. And it is possible for a junior master, again blessed with intelligence, to have picked up enough by courses, camps, and study, to be, within the limited sphere in which he has to function, at least as competent as a young gentleman from Sandhurst. The one thing which is not possible in the O.T.C. to-day, whatever it may be in the Regular Army, is to extricate oneself from a situation, as "Chita" suggests, with a "Carry-on, Sergeant-Major." There are very few Sergeant-Majors and they are required exclusively for the initial stages of recruit training, with a possible demonstration on the heavy or light automatic, if they happen to be experts on them.

Then we come to the Annual General Inspection. The complaint is that this consists almost entirely of an inspection in line and then a

march past, and that these are rehearsed all the summer term. At this school, the morning three-quarters of an hour are given to an inspection—of over three hundred boys, be it remembered—not in line, but in mass, followed by a march to a larger playing field, and a march past in fours and then in column of platoons. There are flags and a band and quite a crowd to watch, and, to be quite honest, we rather enjoy it, and feel a little repaid for our labours. We never rehearse more than twice, and some years only once. In the afternoon there is a much longer period during which the General and his staff officers watch a minor tactical scheme, drill, or instruction in weapon training—all run or given by boys, no officer being allowed to come into the picture throughout. This seems to me reasonable. I think that "Chita" is doing what so many soldiers tend to do; he would probably admit that steady drill is the backbone of military discipline; he would insist on the young officer at Sandhurst doing his time on the square; he would agree that no young officer is fit to command men until he is smart, well turned out, has a good word of command, and can drill himself as well as give his orders; yet he appears to grudge every moment spent on drill by an O.T.C., and to imagine that the qualities required for steadiness and a good turn out which he demands, and even those further qualities required for a smart officer, will somehow appear in an ordinary rather sloppy and casual schoolboy, without any drill at all. If time spent in drilling and being drilled is pure waste, we can at any rate begin by saying to the Regular Army, "Physician, heal thyself."[1]

Actually, if drill is well and smartly done—and it cannot be that without a good deal of practice—boys do not greatly dislike it, and it is obviously extremely good for them. Here, for example, we have a drill competition between the platoons of the various houses every year. The training for this is entirely in the hands of the boy platoon commander, who has his platoon handed over to him for seven or eight parades and has to do the best he can with it. At the end of that time a good platoon commander is more competent to handle and control men than were the products of the 1914 O.T.C.'s who were often sent to France in the first months of the Great War. It is first-class training.

But we cannot consider this whole question of drill and boredom unless we know what are the alternatives, and it is here that the critic usually fails completely, as "Chita" does, to face the facts. First, what is the time at our disposal for parade? In our case, we have 45 or at most 50 minutes, once a week. There are few schools which can get out into open country in that time: we certainly cannot. There

[1] See an article in the JOURNAL for November, 1934, p. 714, on "A Defence of Close Order Drill," by Major M. K. Wardle, D.S.O., M.C.—THE EDITOR.

remain the school playing fields. " These present certain minor difficulties," says " Chita " airily, " but valuable tactical lessons can be learnt on them," provided, apparently, that a regular officer from the neighbouring Infantry Depot be called in to show what they are. It is this kind of observation that makes the O.T.C. officer, even if he is sixteen years out of date, a little peevish. Does " Chita " really suppose that every conceivable scheme and stunt of which the school playing fields are capable has not been thought out and done *ad nauseam*, on inspections, and for Certificate " A " candidates and for everyone else ? The first thing an O.T.C. officer learns, especially in camp, where his training areas are often very inadequate, is to get the best out of the ground at his disposal, and it is no good pretending that any regular officer—without a magic wand—can produce anything new out of our playing fields. That being so, the opportunities for tactical handling are necessarily so restricted on the week-day parade that it is a thousand pities not to make the most of whatever drill and weapon training can be made to do, and I hold that they can do a great deal.

A particularly unfortunate remark by " Chita " is that Contingent Commanders are often reluctant to consult a " qualified military " man. In our experience, whenever there is a depot or battalion near at hand, the regular officer is most willing to help, we welcome his assistance, and our relations with him are always excellent ; this specially applies to camp. Our critic also refers to the regulation which puts the local Depot Mess out of bounds. It may not have occurred to him that schoolboys are not particularly wanted in a mess, any more than they would be in a club. Most officers know boys in the School, and it is probably rather a relief that they cannot be expected to entertain them in their mess. On the other hand, parties of boys who have been shooting against the Depot team, regularly have tea in the Mess. The regulation would be removed but for the fact that it is better for the Mess that it should remain.

" Chita " supplies us with a number of suggestions which " at once present themselves " for brightening the programme. This is well said, for the suggestions have indeed already presented themselves a very long time ago. Lectures by regular officers, demonstrations (though in point of fact some depots do not find these very easy to provide, with a recruit population, and a busy permanent staff), shooting matches, and even visits to barracks—we have done them all. I do not know that any of them teach leadership better than drill does, but they form a welcome change from the routine weekly parade. Whether the suggestion that these should be followed by rather special food applies to lectures and demonstrations as well as to shooting matches, I am not

clear; but it appears to reduce the whole question to the level of farce: the picture of a great school feasting on special food after the C.O. of the depot has lectured them on leadership or minor tactics is a pleasing one!

But enough of these recriminations. I do not for one moment think that the O.T.C. is perfect. No doubt there are bad Corps: even in the Regular Army, where conditions and personnel vary much less, there are good and less good battalions. The difficulties of fitting even a minimum of military training into an already over-full school programme, of carrying it out repeatedly on ground highly unsuited for the purpose, in periods of time often far too short, and with schoolmasters trying to be military instructors for an hour or two a week, are necessarily tremendous. It must not be thought that O.T.C. officers are unaware of them. In close liaison with the War Office Staff who look after them, they are constantly trying to improve things, and to find new ways of making the best of the means at their disposal. "Chita" would probably be surprised to see a list of the queries and suggestions that go before the conferences of representative O.T.C. officers and the General Staff, which are held at regular intervals; and he may rest assured that there is no royal road to improvement which the regular officer can see at once, but which is hidden from a schoolmaster.

What then does the Junior Division do? It takes its boys at 15, and teaches then to stand still, to march, and to handle a rifle up to a very reasonable standard, considering their size and the short time allowed. With us, the later stages of this process are in the hands of a lance-corporal from each house who produces a recruit squad trained by himself for a recruit competition in drill at the end of the term: this is excellent practice for him. In another burst of energy in the next year, while he is 16, it puts him through the syllabus for Certificate "A," which syllabus, since it is the work of regular officers, I am sure "Chita" will not desire to criticize. It gives the boy occasional field-days, as they are still called, which nowadays are usually merely company training in the open country with room to move and a whole day to work things out. Often, regular officers assist, and sometimes regular troops. It takes him to camp two or three times during his school career, where for a week he is trained under the supervision of picked regular officers, gets the feel of military life and sees a lot. Usually in his last year, if he has any gifts of leadership, it makes him an N.C.O. and then puts a great deal of the training of other cadets into his hands. I have already mentioned the drill competition; besides this, the boy platoon-commander and to a lesser extent the other N.C.Os. have the handling of their commands in

camp and on field-days. The platoons are always completely commanded by boys—there are no officer platoon commanders, as "Chita" in one passage seems to think; and often a company is put into the hands of a boy Sergeant-Major in the field, or for drill in the playing field. What more can we do?

Is it all worth while? In my opinion, most certainly it is. These boys—the senior N.C.Os. noticeably, the rest in varying degrees, have shed their self-consciousness and developed self-confidence. They are not afraid to stand up and give an order, and they expect to be obeyed. They are no longer awkward, and they can handle a rifle without clumsiness. They are competent, and the private soldier to whom they were suddenly introduced, as they were in 1914, would feel and know it. These are very important lessons, and lessons never so well or so safely learnt as in youth. Their tactical training does not go very far; but in a sense, whose does? Shall we really know what the tactics of the next war are going to be until it has broken out and the fighting has begun? They will depend so greatly on the terrain, the armament of the enemy, the thickness of the troops on the ground, the degree of mechanization, and a hundred other things. Again, the peace-time tactical training of a few hundred boys (or men) on an area almost invariably artificially "bounded" on the flanks, in strictly limited periods of time which do not allow of the use of darkness, without shells or bullets or anything that in any way really represents them, without pick and shovel, and without wire—whether barbed or signalling—frankly, what relation does it bear to the real thing? Any intelligent boy can and does see that no amount of postulating imaginary M.G. and gunfire makes his attack over Salisbury Plain on to Beacon Hill a possible manœuvre of war. Even the regular soldier will have much to learn. For example, one has often heard with respect the tremendous fire-orders of the brazen-lunged regular N.C.O., and tried to make the boy emulate them; but one's memory of open fighting in Palestine as well as of trench warfare in France seems to be that, when there is any volume of enemy fire, the most laconic of fire-orders from the most brazen of lungs cannot possibly be made to reach even the smallest of sections extended at two paces only. In fact, if we are thinking of our cadet as a potential officer in an emergency, it does not much matter whether he retains detailed knowledge of the tactics taught him or not, nor indeed of battalion organization and "other Arms," both of which seem to vary like a kaleidoscope. What matters is that he should have a grasp of a few elementary and unvarying principles, and that he should have the confidence which comes from having wrestled successfully with cognate problems in peace time. And these things, in my opinion, the O.T.C. can and does give to a large proportion of its cadets.

Finally, there is "Chita's" well-known General who said "the Junior O.T.C. is the worst recruiting agent in the country." I suppose what he meant was that the soldier's life is such a rotten one that if you show the schoolboy what it is really like in his youth, you will not catch him. He would seem to favour the methods of the old-time recruiting sergeant who enticed the country bumpkin to serve his King with a series of glorious but entirely untruthful yarns. Personally, I do not believe this, except in the same sense that I believe that the Latin Grammar and Gerundive Attraction are the worst recruiting agents for classical scholars. I can conceive of few things more irksome to an ordinary fifteen-year-old than his first few parades at steady drill without arms. But they have got to be done, and it is much better to face the fact. To my mind, the soldier's work with its personal interests and its open air life is the best work there is in this grim world of ours. But is it the best *play?* You are not asking young men to take it on as work, as the Regular does, but to take it on instead of play. So few Regulars seem able to see the difference. The English are essentially an unmilitary race. The young Englishman of the upper classes does not take kindly or easily to many sides of soldiering, and, but for the familiarity with them which he gets from the O.T.C., he would take even less kindly to them. He has not much leisure and he has a lot of much more pleasant things to do in it than to go to Territorial Drill Halls or to attachments with Regular Units. Sometimes his sense of duty, which Public Schools and O.T.Cs. obviously tend to foster, makes him do the job. Sometimes he really likes it, and is a soldier *manqué*. But I hold that if a young man who would otherwise have taken a commission has been put off by his experience in camp and in the weekly parade to such an extent that he will no longer do so, then that young man would never have had the courage and keenness to stick to the job and make good, and the Territorials or the Supplementary Reserve are well rid of him, and may be grateful to the O.T.C. for saving them from him.

In speaking controversially one is often led to speak strongly, and I should be very sorry if I have conveyed the impression that the O.T.C. is overpleased with itself and its results. It is not, and it would welcome constructive criticism from any source. But at present the tendency seems to be to make it the whipping boy for all that is wrong with recruiting, much of which is due to conditions quite out of its control, while the critics are often extremely badly informed as to their facts. What it really needs is a pat on the back from someone in authority to save it from developing an inferiority complex.

UNIFORMS, EQUIPMENTS, STANDARDS AND COLOURS OF THE BRITISH ARMY

WITH reference to the compilation of a Summary of Uniforms, Equipments, Standards and Colours of the British Army, details of which have been published in recent numbers of the JOURNAL, the following Regiments in addition to those shown in the JOURNAL for February, 1936, have now intimated their desire to be identified with the scheme :—

Regiment.	*Representative.*
3rd Carabiniers	Captain V. M. Barnard, M.C.—for the Carabiniers. President, Mess Committee—for 3rd Dragoon Guards.
The Bedfordshire and Hertfordshire Regiment	Captain B. L. Pavey.
The East Lancashire Regiment . .	Major C. E. M. Richards, D.S.O., M.C.
The Durham Light Infantry . . .	Captain G. S. Fillingham, M.C.
The Royal Corps of Signals . . .	Major H. W. Hose.

The following Regimental Representatives have been appointed in addition to those shown in last quarter's list :—

Regiment.	*Representative.*
1st King's Dragoon Guards . . .	Major F. H. Charlton.
Oxfordshire and Buckinghamshire Light Infantry	Officer i/c Regimental Museum.

In addition to the Regiments which have already made contributions to the Summary, mentioned in the JOURNAL for November, 1935, page 768, useful reports have been received from :—The Black Watch, The Oxfordshire and Buckinghamshire Light Infantry, The Prince of Wales's Volunteers, The Royal Northumberland Fusiliers, and The Welch Regiment.

A number of contributions of information for the Census of Colours have also been received.

THE ROYAL NAVY

(One of the principal objects of the JOURNAL *is to make each Service better known to the other two.*

The following articles have been specially written with a view to explaining how the Navy is Administered, Organized, and Directed; also what are the various Units of the Fleet and what functions they are intended to perform in war.

This will be followed in succeeding numbers by similar articles on the Army and the Royal Air Force.—EDITOR.)

ADMINISTRATION, ORGANIZATION, AND DIRECTION

By LIEUTENANT-COMMANDER D. L. RAYMOND, R.N.

IN the early days of English history warfare at sea was of a very simple kind; the King merely commandeered what vessels he needed and filled them up with soldiers who used these floating battlefields for fierce hand to hand combats. It was not until about the year 1200 that the King began to build a fleet of his own. When this stage was reached it became necessary to have someone to supervise the maintenance of these ships, and the King instituted the office of "Clerk of the Ships"—strangely enough the first individual to hold this office was the Archbishop of Wrotham. The necessary money was drawn from the King's wardrobe accounts.

In 1406 came the next development, when the office of Lord High Admiral was created with the object of providing someone to direct the activities of the ships administered by the Clerk. This may be regarded as the Board of Admiralty in its simplest form, the Lord High Admiral being responsible for the Direction, while the Clerk was responsible for the Maintenance of the King's ships.

As time went on and these ships increased in number and changed from mere transports into fighting units, a more complex system of administration became necessary; Figure I. shows that produced by Henry VIII. It can be seen that he adhered to the principle of keeping the function of Maintenance separate from and subordinate to that of Direction. The Maintenance side of the organization soon became known as the Navy Board or Navy Office.

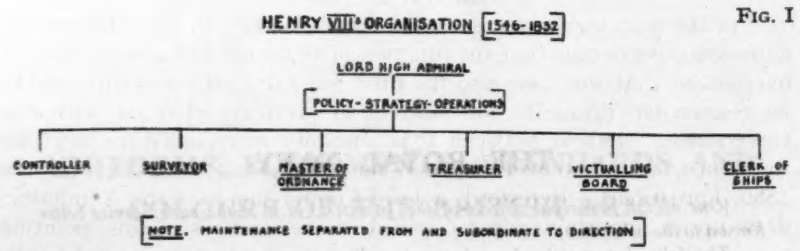


FIG. I

THE ADMIRALTY

When Buckingham, the Lord High Admiral, was assassinated at Portsmouth in 1628 his office was put into commission and was thereafter held by Lords Commissioners, or to give them their full title, " Lords Commissioners of the Admiralty for executing the office of Lord High Admiral." This, the Directing side of the organization, then became known as the Board of Admiralty.

Although Henry VIII's system had begun on sound lines, with the Board of Admiralty at Whitehall concerned with the operation of the fleet, and the Navy Office in Somerset House concerned with maintenance and supply, serious failures soon developed. Sub-departments, such as the sick and pay offices, were housed in buildings in various parts of London. The gap between Direction and Maintenance grew too wide and the Navy Office drifted into a terrible state of corruption. Despite the efforts of various Boards of Admiralty, nothing much was done until 1832 when Sir James Graham introduced the Navy Civil Departments Bill. The organization which resulted is shown in Figure II. It can be seen that, in order to get rid of corruption, the basic principle of the old system was broken and the functions of Direction and Maintenance were combined in the person of the First Lord—a man chosen by the Prime Minister of the moment. He had working under him four Sea Lords who were naval officers, and a Civil Lord and two secretaries who were civilians.

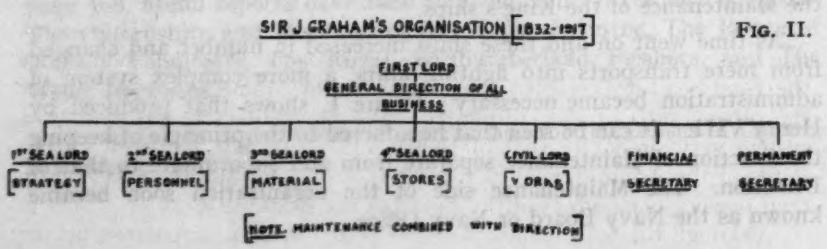


FIG. II.

The Naval Staff

For the next eighty years the Sea Lords became so overwhelmed by administrative details that the function of Direction was almost entirely overlooked. At this time also the First Sea Lord, who was supposed to be responsible primarily for matters of strategy, changed with the Government; indeed between 1832 and 1861 he changed no less than fourteen times, moreover, he had no Naval Staff to assist him. In 1886, Lord Charles Beresford, a Lord Commissioner of the Admiralty, drew up an important paper couched in the strongest terms, pointing out our lack of preparation for war. His vigorous campaign led to the establishment of the Naval Intelligence Division, and this really constituted the beginning of a Naval Staff. The department grew rapidly, and by 1902 comprised four divisions. It had a personnel of thirty-seven, of whom twenty-two were naval and marine officers; one of them was Sir Maurice Hankey. Meanwhile, the maintenance side of the Admiralty underwent very little change, and continued in much the same form until 1916.

In 1904, Lord Fisher became First Sea Lord, and his remarkable character ran counter to every conception of a staff. His successor, Sir Arthur Wilson, was a great fleet leader, but a man of whom it has been said that he carried all his plans in his head and no one else knew what they were. In such circumstances the new Naval Staff with huge arrears of planning to make up and with the German menace already on the horizon did not really have a fair chance. It is not surprising that in 1911, when the Agadir crisis nearly led to war with that Power, it became obvious that the Intelligence Division was not on a satisfactory footing.

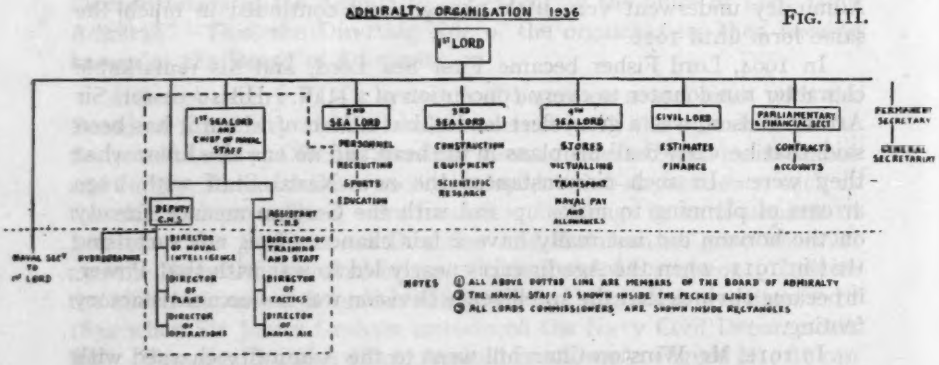
In 1912, Mr. Winston Churchill went to the Admiralty charged with the task of forming a War Staff, but this was only in its infancy when war broke out in 1914. During the years that followed it became increasingly clear that this system was unable to cope with the situation. In 1916 Sir John Jellicoe left the Grand Fleet to become First Sea Lord and to reorganize the War Staff, which then became the Naval Staff. He returned to the old principle of separating Direction from Maintenance. Since 1917 there have been various adjustments but no major changes, and the system to-day which is shown in Figure III. remains much as it was in 1917. It will be seen that the Direction side under the First Sea Lord, is kept separate from the Maintenance side under the other Lords of the Admiralty. We have, in fact, returned to a system very similar to that of Henry VIII. To-day, however, all the Lords of the Admiralty, even those responsible for Maintenance, retain their powers as members of the Board of the Admiralty.

Although the only members of the Board who are appointed by the

Prime Minister and change with the Government are the First Lord, the Civil Lord, and the Parliamentary and Financial Secretary, it must not be thought that the other five members become permanently buried in offices. They are Admirals of great sea experience who have commanded and may again command squadrons and fleets. The Board is therefore in close touch with developments at sea and the lessons learnt from practical experience. Here, at last, we have the First Sea Lord, responsible for Direction, unfettered by considerations of Maintenance and assisted by a staff of naval and marine officers. This staff is not as complete as could be wished, but has had to be accepted owing to the need for economy during recent years. In war time the number of divisions would be increased to cover such subjects as Local Defence and Trade. Nevertheless the three essential Divisions—Plans, Operations, and Intelligence, are there, and could be quickly expanded when necessary.

ADMIRALTY ORGANISATION 1936

FIG. III.



Executive authority for all operational matters is vested in the person of the First Sea Lord in his capacity of Chief of the Naval Staff. During the late war a question arose as to who should exert this authority in the absence of the First Sea Lord. The Second Sea Lord being the next senior was really responsible, but it was obviously impossible for him to keep in touch with operational matters as well as deal with personnel, which was and is his special responsibility. A Deputy First Sea Lord was therefore created to attend only to operational matters and to represent the First Sea Lord in his absence. This post was abolished after the War, but would almost certainly be re-introduced in any similar circumstances.

The Admiralty is linked to the Committee of Imperial Defence through the First Lord and First Sea Lord, who are both Members. The latter, with the Chiefs of Staff of the other two Services, forms the Chiefs of Staff Sub-Committee.

Maintenance

The Maintenance side of the Admiralty is the concern of the Third Sea Lord—known as the Controller, and of the Fourth Sea Lord—known as Chief of Supplies and Transport. Unlike the Naval Staff side, it comprises a vast number of Civil Servants. It is, of course, through civilians that the Board of Admiralty is linked to the Government. The First Lord is a member of the Cabinet, and the Civil Lord deals with the Treasury in matters concerning the estimates and finances of the Navy.

The Naval Staff Afloat

Before the Stuart period there was no separate Captain in a flagship. The only way in which an Admiral could get advice was by calling a Council of War before an action was expected to take place. With the advent of the Commonwealth, a large building programme was launched and the Navy rapidly increased. This led to promotion from the lower deck of men who were doubtless fine seamen but who lacked education. Partly owing to this, and partly because of the second-rate type of officer attracted during a long period of corruption, there were at this time few Captains fit for promotion to the higher ranks. It is not surprising, therefore, that many of the high posts ashore and afloat were filled by soldiers. Apart from five soldiers who became Lords Commissioners, two—Generals Blake and Monk—commanded fleets at sea.

In 1672 Commanders-in-Chief were allowed an additional Captain, known as the First Captain, but they had no specified duties and were often completely ignored by their Admirals. Later on, they were given the rank of Admiral and renamed Captains of the Fleet, and in 1806 their duties were clearly laid down. But, now that they were Admirals, they had to have their own Secretaries and Flag Lieutenants, and they could not, therefore, be accommodated in the already overcrowded flagships. So they lived in other ships, with the result that once again the Commander-in-Chief was without his staff during an action. This was obviously farcical, and early in the XIXth century the appointment lapsed. Not until 1891 do we find some improvement in the situation, when a Chief of Staff was authorized, thus bringing the Commander-in-Chief's staff up to a Chief of Staff; a Flag Captain; Flag Lieutenant; and a Secretary. Gradually this staff was expanded to cope with modern war conditions and the present-day staff of a Commander-in-Chief of a large fleet is shown in Figure IV.

Here again we find the functions of Direction and Maintenance separated, as they are in the Admiralty organization. It will be noticed that the Captain of the Fleet is concerned with the administrative

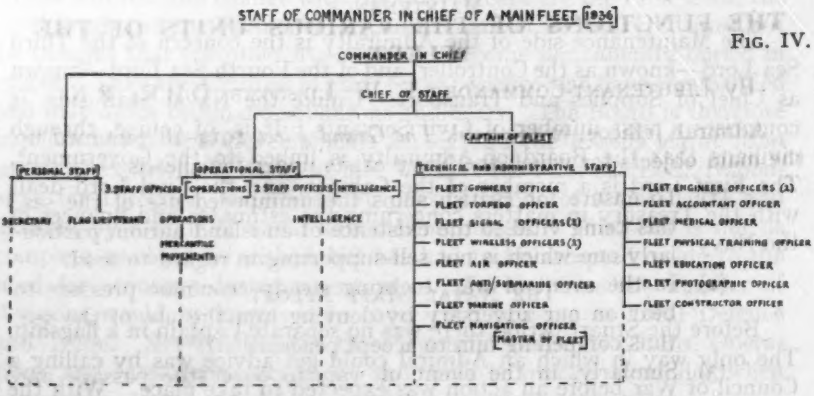


FIG. IV.

details of the command, supervising those sections of the staff which deal with Maintenance of material, the well-being of personnel, and matters of routine. The Chief of Staff directs that section which deals with the operational side of the fleet's activities.

Here we have the connecting link between the Naval Staff ashore and that afloat. The main war plans are considered and issued by the Naval Staff at the Admiralty. It then becomes the task of the staff of the Commander-in-Chief to put those plans into execution as far as they apply to that particular fleet. In this work he is assisted by the operations side of the staff, which not only deals with the writing of operation orders, but must also of necessity consider such things as local intelligence, local mercantile movements, and fleet exercises and training.

In actual practice the Naval Staff afloat does not work in watertight compartments, as might be inferred from Figure IV. A close collaboration between all the various members is essential and does, in fact, exist. For instance, if a certain operation is projected, before the orders can be produced the Staff Officer for Operations—SO (O)—must seek the advice of the members of the technical and administrative side of the staff on such questions as the state of readiness of boilers and engines, the fuel requirements, the supply of provisions, and the training of the ships companies.

In smaller fleets and in squadrons, the staff is naturally reduced. Sometimes this is done by having fewer Staff Officers for Operations and Intelligence, and sometimes by making the flagship's technical officers also carry out the duties of staff officers. Nevertheless in all cases the principle of the organization is the same.

THE FUNCTIONS OF THE VARIOUS UNITS OF THE FLEET

By Lieutenant-Commander F. W. Lipscomb, O.B.E., R.N.

Admiral Jellicoe, in his book *The Grand Fleet* 1914–16, summed up the main objects for which the Navy exists under four heads :—

(1) To ensure for British ships the unimpeded use of the sea, this being vital to the existence of an island nation, particularly one which is not self-supporting in regard to food.

(2) In the event of war, to bring steady economic pressure to bear on our adversary by denying him the use of the sea, thus compelling him to accept peace.

(3) Similarly, in the event of war, to cover the passage and assist any army sent overseas, and to protect its communications and supplies.

(4) To prevent the invasion of this country and its overseas Dominions by enemy forces.

It is recognized that all the above will be achieved most surely and most quickly by destroying the enemy's armed naval forces.

To this end, therefore, we have a Main Fleet, also other naval forces, chiefly cruiser squadrons, suitably placed along the Empire's sea communications.

Main Fleet Units

The Battleship.—The first essential of the battleship is that it shall be able to withstand all forms of attack, whether from the sea, the air, or the land. It has been alleged that this type might, by international agreement, be limited to 10,000 tons instead of the existing displacement, which is generally in the neighbourhood of 30,000 tons—the cost being proportionately reduced ; but such a ship could not withstand attack by all forms of modern weapons, and would therefore fail to fulfil the primary requirements. At the recent Naval Conference, the Admiralty advocated a reduction of the maximum displacement of battleships to 25,000 tons ; but the United States could not agree to this, and the 35,000 tons limit agreed to at Washington in 1922 still maintains.

Our existing battleships displace about 30,000 tons and carry a main armament of eight or nine 15-in. or 16-in. guns, capable of firing a projectile weighing about a ton, up to a range of between 25,000–30,000 yards. They are fitted with side armour, which gives them protection at all ranges at which it is expected that the fleet will engage the enemy ; also deck armour to protect them against plunging fire and bombs ; and

underwater protection by which the effect of a torpedo will be minimized to such an extent that the danger of the ship being sunk by this type of attack is small. They are provided with many anti-aircraft guns, whereby a great volume of fire can be directed against enemy aircraft. Their engine-power is sufficient to drive them through the water at a speed of over 20 knots. Our battleships can also fire torpedoes, and they carry a vast array of auxiliary equipments such as wireless, fire-control instruments and communications, visual signalling apparatus, searchlights, anti-gas protection, and many other devices.

The battle fleet, like the main body of an army, requires other units to reconnoitre, and so enable it to find and bring the enemy to action, also to act as a screen to guard against surprise. These functions are performed by cruisers, aircraft, and destroyers.

The Cruiser.—In conjunction with fleet aircraft, cruisers provide the principle reconnaissance force of the Main Fleet, by which means contact with an enemy fleet is first obtained. For this duty the cruiser must, obviously, have a high speed which will enable her both to search out the enemy and keep the requisite distance ahead of the battleships. In the case of our ships, this is about 32–33 knots. Once contact is made with the enemy, the cruiser must be strong enough to fight its way through his advanced forces in order to locate and report the whereabouts of his battlefleet; they must therefore have a fairly heavy gun armament. We have two main categories of cruisers, one displacing 8,000 to 10,000 tons and carrying six or eight 8-in. guns; the other displacing 5,000 to 9,000 tons, and carrying six to twelve 6-in. guns. With the weight of such an armament and the boilers and engines required for such high speed, it is impossible to give these ships heavy armour; they do, however, in general, have some protection to their vitals.

Most modern cruisers carry three or four torpedo tubes each side, which gives them a further weapon with which to fight their way through the enemy advance forces. They also carry one or more aircraft which may be used to extend their powers of reconnaissance.

The Battle Cruiser.—In order to provide support for the cruisers in their efforts to sight and report the enemy, there are battle cruisers—ships of great speed and gun power, capable of driving all before them except the enemy battle fleet itself. These qualifications necessitate a vessel with guns of the same calibre as a battleship, if fewer in number; well-armoured and protected generally; and with the speed of a cruiser. This means a displacement of about 32,000 tons.[1] In fact, except that

[1] This is the displacement of the "Renown" and "Repulse," carrying six 15-in. guns. The "Hood," with eight 15-in. guns, displaces 42,000 tons.

it is built with fast lines and is therefore much longer, the battle cruiser is really like a very fast battleship deprived of some of the armour protection.

Once the main action is joined, the battle cruisers take up a position where, in conjunction with the cruisers, they can command the waters ahead of our battleships. While avoiding a gunnery duel with the enemy's heavy ships, as far as possible, they would take every opportunity to concentrate their fire on the head of his battle line.

The Aircraft Carrier.—Up to a few years ago the fleet was dependent for " eyes " on the cruiser, but with the advent of flying a new unit has arrived in the main fleet—the aircraft carrier.

With the aid of reconnaissance aircraft, operated from a carrier, the Commander-in-Chief may be able to secure much earlier information of the enemy, from which he can make his dispositions. Besides reconnaissance aircraft, torpedo-bombers and fighter flights are carried. The former are used to attack the enemy battlefleet with the object of crippling one or two of the heavy ships before the main action is joined, thereby compelling him either to abandon the damaged ships or stand and fight for their protection. Fighters can be sent with the torpedo-bombers to attack the enemy battle fleet in order to confuse his anti-aircraft gunners ; as a general rule, however, their function is to protect their carrier from the attack of enemy aircraft. Although this type of ship has been in the fleet some years now, it is still somewhat in an experimental stage as regards its best position and employment with the fleet, and until an actual main fleet battle has been fought, it is doubtful whether the exact functions can be laid down as clearly as those of the ships already described. In construction, the carrier is a great floating aerodrome, and it is generally of very large dimensions, displacing as much as 35,000 tons.[1] It is necessarily very fast, in order to give it the best chance of keeping up with the main fleet while at the same time flying on and off aircraft. It is given a light gun armament for defence against light surface craft and a fairly powerful anti-aircraft armament. The hull has under-water protection against torpedoes.

From time to time it is suggested that shore-based aircraft and flying boats would be capable of carrying out the work of carriers ; but, unless operations are to be confined to an area within range of the former or a depot ship and sheltered harbour are available from which the latter could operate conveniently, carriers will be essential to the mobility of the main fleet.[2]

[1] Under the Treaty which has just been concluded, the displacement of aircraft carriers will be limited to 23,000 tons.

[2] See also the article on " Flying Boat Fallacies " in this JOURNAL, p. 397.

Destroyers.—Always remembering that the object of our main fleet is to destroy the enemy battlefleet, we do not leave the heavy ships to decide the issue by a gunnery duel alone. To assist in the destruction of the enemy we have destroyers. These are ships of about 1,400 tons with a speed in the neighbourhood of 36 knots. They carry eight torpedo tubes and, usually, four 4.7-in. guns. They have no armour. Their role is to dash out from the cover of the battle fleet, and trusting to their high speed to dodge the enemy's gunfire, to get within range of his battleships and fire their torpedoes. They generally cover their retreat with a smoke screen. They are also used to break up similar attacks by the enemy's destroyers—hence their gun armament.

Besides this offensive role, destroyers have a defensive part to play. Enemy submarines may approach our battle fleet unseen, it is therefore necessary to protect them by a destroyer screen. In this capacity it is their duty to detect the presence of submarines, and warn the battleships of their presence, at the same time endeavouring to destroy the enemy with depth-charges. Once the rival battle fleets are in action, however, the screening destroyers leave their defensive duty and form part of the attacking force.

Other Naval Forces

There are many duties which fall to the lot of the Navy besides those performed by the main fleet. Cruisers are required all over the world for commerce protection. For this purpose they are given great endurance so that they can make long passages or keep the sea for a prolonged period without having to put into port to re-fuel. Destroyers, also, are used away from the main fleet, both for the local protection of harbours and for the protection of commerce. They are particularly suited for anti-submarine work, and we can never have too many of them; in the late war the decision had to be made again and again whether destroyers were to be taken from their duties with the main fleet in order to strengthen the protection of our merchant shipping from the submarine menace.

The Submarine.—There are two chief types of submarines in the British Navy: the ocean-going submarine, built to operate in all parts of the Empire, and more or less self-supporting; and the small submarine, intended to work from a base and which does not, therefore, require such great endurance. The main functions of both these types is to patrol off the enemy's coast and harbours and secure early information of the movements of his battle fleet and heavy ships, and to patrol along the expected line of advance of the enemy, both to give information of his movements and, if possible, to torpedo some of his

heavy ships. A submarine does not necessarily fire torpedoes whenever it sees an enemy; it may be preferable to allow the enemy to proceed unmolested and to report to the Commander-in-Chief, who may thereby be able to make such dispositions as will enable him to bring on a fleet action. A submarine would, of course, always attack single enemy ships, cruiser squadrons, or aircraft-carriers. Submarines can also be used to attack enemy submarines; they were successful in accounting for about twenty out of the hundred and eighty-two German underwater craft known to have been sunk in the late war.

In recent years submarines have been constructed as minelayers and aircraft carriers, and have operated with success. The minelaying submarine can be particularly dangerous by laying mines in a channel immediately after the minesweepers have swept and reported it clear and heavy ships have put to sea, unaware that a fresh field has been laid. Aircraft-carrying submarines may prove most useful when operating close to an enemy's coast as they can carry their small aeroplane unseen to a point of vantage, whereby its range is much increased and surprise is obtained.[1]

The Minelayer.—The duty of this class of vessel is to lay mines where this can be done by a surface ship, such as a defensive field off our own coasts, or as part of an offensive operation in enemy waters. Minefields which have to be laid close to the enemy's shores are usually laid by submarine minelayers.

The Sloop.—This type of ship is used all over the world, both for minesweeping and for general patrol duties. It is employed in such places as the Persian Gulf where its small draught enables it to go into harbours and river-mouths which a cruiser could not approach.

The Netlayer.—This is a special type of ship used to lay anti-submarine and torpedo nets off the entrances to harbours where the main fleet or large concentrations of ships are to lie.

The Anti-Aircraft Ship.—Virtually a large mobile platform for anti-aircraft guns, the exact uses of this class are still under investigation; but it may become a new auxiliary to the main fleet for the protection of battleships and aircraft carriers; and it may also be used for commerce protection.[2]

[1] At present the Navy has no aircraft-carrying submarines. "M.1," an experimental craft, was sunk by accident, and the type has not so far been revived; but it proved quite efficient.

[2] Two old, small cruisers have been adapted to provide experimental ships of this type.

The Minesweeper.—Although there are ships specially constructed for mine-sweeping, many types of vessels are employed in this work in war time—chiefly trawlers and small steamers which have good winches.

The Coastal Motor Boats.—These little craft are really large motor boats capable of firing one or two torpedoes. They have very high speed and offer a very small and elusive target. They are essentially for use in fairly sheltered waters. In the late war they were used off the Belgian coast and in the Baltic; they were employed with success for attacking ships in harbour and in narrow waters.

The Gunboat.—This is a small vessel of a few hundred tons, used to operate up large rivers, such as the Yangtse and other Chinese rivers; also on the West Coast of Africa.

Fleet Auxiliaries.—The Admiralty have to maintain a large number of fleet auxiliaries to supply the men-of-war with oil and stores when away from a large base. They include various types of merchant ships, and form a service of their own, commanded and manned by the Royal Naval Reserve.

Dominion Navies

In addition to the ships of the Royal Navy there are those belonging to the Dominion Navies. The Royal Australian Navy includes three modern cruisers, a seaplane carrier, and some destroyers; the Royal Canadian Navy has four destroyers and a few small auxiliaries; the Royal Indian Navy, which until a year ago was the Royal Indian Marine, consists of five sloops and some small craft. New Zealand maintains a Division of the Royal Navy, the chief units of which are two fairly modern cruisers.

Bases

All these ships which make up the Navy require bases from which they can operate and at which they can receive repairs, ammunition and stores. There are three main Home Ports—Portsmouth, Devonport, and Chatham. Others, such as Rosyth and Pembroke, could be brought into use in a very short space of time. Overseas, there is a chain of naval bases linking up the sea communications of the Empire. For instance, on the route to the Far East we have Gibraltar, Malta, Aden, Trincomalee, and Singapore. In fact, wherever British interests are concerned, there will be found, if not a base, at least the nucleus of a base, which in the event of war, our fleet or squadrons could use. The local defence of these bases is a responsibility in which the closest co-operation of all three Services is called for.

THE LANGUAGE OF AUTHORITY

By MAJOR G. C. SHAW, R.A.O.C.

"He that useth many words shall be abhorred, and he that taketh to himself authority therein, shall be hated."—Ecclesiasticus, xx. 8.

THE new warfare—the war of machines, with its new arms and, above all, its new modes of locomotion, brings in its train many a problem in tactics, strategy, and supply. To solve these, if he would clearly see how best to wage his new warfare, the soldier must cast off the ritual of tradition, return to simplicity, and break through the crust of habit to seek truth. For this, individualism and its critical faculty are needful and, to express its thought, words—clear and terse. Still more is this so once solution is reached and replaced by manœuvre or experiment on the ground. We will deal with individualism, first, and later with its words.

Individualism, with its offsprings, initiative and self-reliance, as soldierly attributes have only been officially approved by military authorities in recent times. Before the armies of Napoleon—children of the Revolution, alert and critical—overran Europe and dominated it at the end of the XVIIIth century, the soldier was a disciplined clod, a well-drilled automaton, who moved and acted when ordered. The junior officer was little better, for it was a time of close-order movement when precision in drill and unquestioning obedience were the primary virtues. In our own armies, we see individualism first openly looked for, and even beginning to be made a cult of, in the South African War, where the power of the small-arm bullet and the wide dispersion of force in the field, encouraged it. Even in the lower ranks initiative and self-reliance began to be looked upon as desirable military virtues. Since then, this has been regarded as a military commonplace. To-day, these virtues are sought, and their necessity emphasized, on all and every occasion. But what are they, after all, but the qualities of the individualist; he who breaks away in thought or action from the road pursued by the mass. So much, then, for individualism, except that it needs to be borne in mind that, when considered in terms of leadership, it must express itself mainly in the spoken or written word.

Where, however, the soldier might have grown more self-reliant, more independent of thought, the circumstances of war have been

all against him. For the last century or so, military force has been *read* in numbers: wars have been waged by armies so huge, that invasion must be planned in advance, carefully and meticulously, to enable road and railway to bear the advancing masses; so huge, that once launched, any serious change to the plan spells disaster. Every movement must go to plan; each unit, each individual, being an ordered cog in an enormous ordered machine. Attacks are not made, they are "mounted" after weeks of preparation. The teachings of Clausewitz have permeated European staffs, the Teutonic theory being that mass driven forward, if ruthless enough and in sufficient weight, must inevitably cut a swathe of advance through its less determined foes, and thus permit movement as planned and battle as pre-ordained. And the Great War was an apotheosis of the principle. In these circumstances, is it to be wondered at that individualism is at a discount or that it is merged in the mass. A similar criticism may equally well be levelled at modern industry, where decimalized planning, economic output, and mass production methods tend likewise to submerge the individualism of the operative.

With such methods of warfare, and befitting their practice, there has gradually been evolved a written military language, which may best be termed "officialese." It is not confined to the Army, its province is wide. It is the written language of Parliament, Government Offices, the other Services, Municipalities, County Councils, and even, occasionally, commercial houses. On all of these the sin of it should lie heavily, but most, on the man of action whose trade is war. For the others there might be pardon; for him there should be none. In virtue of his calling, he, of all men, should be brusque, alert, decisive, in both thought and speech; and yet, given a pen and some leisure, he perpetrates "officialese"—a written tongue which, though comporting perfectly with the tempo of the slow-moving or static operations of the enormous armies of the past, accords ill with mechanization and its call for speed. Nor is it consonant with the new-born slogan of mobility in thought and action.

Let us take stock of it, and note some of its salient features. We may find it in Memorandums and Minutes, Returns and Reports, and in Authorities and Orders; in fact, almost anywhere—it is possible some fine blooms might be culled from the tray of papers at your elbow. It is not arresting and ornate like journalese; nor terse and vivid like slang. For journalese has to sell and, to do so, even at its worst must be persuasive and attractive, while slang, at its lowest, is racy and descriptive. Both are alive, both vigorous. But "officialese" may always be detected at a glance: it would be precise—it is only pompous;

it would be dignified—it is merely dull; it pretends to authority—and achieves vagueness; it should be virile—it has become anæmic; it should be soldierly—and it has grown sluggish. It is mothered by Caution, and fathered by Laziness. It is not prose, although it passes for such; and its sole excuse can be that its forms have become stereotyped by common habit, and hallowed by tradition.

Above all things it loves the passive verb—it is so comfortable, so safe. It implies that the office—the whole official machine, has considered the matter, and this is their opinion. Moreover, in the event of error or mistake the same corporate body will, nay must, shoulder the responsibility. Shades of Wellington! Thus we get: "It is submitted that . . ." and "It is considered that . . ." and finally—mark the woolly, amorphous safety of it—"It is regretted." Now, a soldier might write more fittingly: "I submit," or "I consider," or even "I regret."

The next in order of its loves is to use the abstract noun instead of the concrete; so is jargon piled upon caution. Here again, we see latent a woolly safety, an amorphous security. How often is the soldier told in print that "There will be an inspection by the Company Commander of the . . . ," in place of the more virile and decisive "The Company Commander will inspect the . . . ." A reference to any Station, or other Orders will occasionally reveal the news that "During the absence of Colonel A . . . the command of the Royal Blankshire Regiment will devolve upon Major B . . ." Might not this be better and more simply put, as indeed it would be, if given verbally in the field: "Major B . . . will command the Royal Blankshire Regiment, while Colonel A . . . is away." The last is pithy and concise, and gives all that is wanted. Yet, note in the original the hint of tactful safety, for "devolve" implies that the command will descend as a mantle upon the ready shoulders of Major B . . ., the next in order of seniority, and will be assumed by no upstart. We are told periodically—and generations have heard it—that "A board will be assembled for the purpose of auditing. . . ." Why not simply: "to audit . . ."—the abstract noun invariably appears. Its forms are legion, and only when he has strung them, one after another like a row of sausages, is your official draftsman really satisfied.

If we turn to the Bible—admittedly a very high standard—we find wording which is not only beautiful, but simple and virile. Let us take one sample:

"Consider the lilies of the field, how they grow."

How would these blooms be tended in a Government office? Would the idea not be expressed somewhat like this:

"Care will be exercised in connection with the forthcoming inspection of Lilies, Field, Mk I, and rendition of reports relative to their growth will be made by those concerned through the usual channels in due course."

The lily, alas, has been choked by the prolific growths around it.

In ordinary, workaday life, a man "goes" from place to place. Yet, no soldier ever "goes"; he invariably "proceeds"—which is clearly the longest way of doing the thing. How the military command and its execution in the scriptural "I say unto one go, and he goeth," would appear in "officialese" may be left to the imagination of the reader.

As a study for moments of leisure, this language is interesting. On the face of it, it seems to mean a lot; when analysed—and, at times, it needs an old, trained clerk to do this—it actually means little; sometimes even, nothing at all. It is cumbersome and loves circumlocution. Let us note a few average samples, lifted at random. Here is one:

"All orders will be as brief as possible consistent with clarity."

Now, what does this all mean, but—

"Orders will be brief and clear."

Is not this an accepted military maxim, requiring no elaboration? The abstract "clarity," though it has an attractively decisive ring about it, yet leaves the whole woolly.

Again:—

"On all occasions, even though the force is automatically protected by the dispositions of other bodies of troops, the force commander will be responsible for such local measures, within his resources, as will ensure the safety of his command."

What is the kernel of all this, but—

"At all times, even though the force be protected by other troops, its commander will himself ensure that it is as safe as possible."

An educational pamphlet gives us the following gem:—

"The business of the instructor is to present his lessons in an interesting and varied shape. They may take the form of a competition or game, provided it has the novelty which attracts interest and produces the result at which he aims."

Midst all these cloudy abstractions, our lesson appears, as at a spiritualistic séance, "an interesting and varied shape." See it now materialize:—

"The instructor must make his lesson attractive and varied.

It may be a competition or game, providing it is novel and interesting and so educates the man."

Here is a typical reply in "officialese" to an application for something or other:—

"It has been ascertained that the matter has been given full consideration. No amendments to the regulations dealing with such cases can therefore be made."

It is the voice of authority which speaks, so why not more decisively:

"The matter has already been fully considered, and regulations cannot be amended."

Even the all-pervading *pro forma*, refuge of clerical staffs, suffers at times. To take an example:—

"If the nature of the business conducted by the firm is not clear from its designation, state what the business is."

Might not this be:—

"If, from its title, the firm's business is not clear, state what it is."

Mark how, even in a note where it is essential to be brief, the abstract insinuates itself; as indeed, it does everywhere; it is a lily of most prolific growth.

Let us now look at a few of its lesser loves—the useful hacks of custom, which minister to indolence of thought. To start a paragraph always calls for some little mental effort in a writer, and how comfortably there lie waiting for him "As regards . . .", "Regarding . . .", and "In connection with . . ." This last one is full of vice—witness its use in the following:—

"A commander will exercise his discretion with regard to the clipping of horses' bodies. Except in the case of H.D. horses, legs may be clipped . . ."

Now, this clearly means that he may clip his horses' bodies or not, as he may choose, but—and less clearly—should he be confronted with the legs of H.D. horses in a case, he is to shun them. These phrases are the humbler relations of the lawyer's more stately "Whereas," and give results quite as good. Equipped with these invaluable standbys, he may then safely let loose the turgid flow of abstract noun and passive verb. Should his sentence not appear sufficiently imposing, he may squeeze in a "nature," a "character," or "condition": thus, he arrives at his well-tried effects,—phrases like "crimes of this nature," "stores of this character," or "the prisoner was in an intoxicated condition," and so on. These, of course, might well read "similar crimes," "stores like this," and "the prisoner was drunk," but, to the eye of an exponent of the craft, they have a thin, perhaps a lean,

look. The writer is sure to find, if he care to seek, " such " and " the same " sprinkled about in a morning's correspondence. He will also certainly find that some subject has been " noted for consideration," instead of being merely " noted ", or read that " the necessary steps should be taken to arrange that . . .", in place of the simpler " should arrange that . . .", or, worse still, note (an old offender) that his stores " are in excess of . . .", instead of " exceed " some authorized scale.

But these are the trivialities of " officialese." There are minor peculiarities which appear more or less regularly. Thus, just as the soldier never " goes," but always " proceeds," so also he never " gets " a key or other article, but " possesses himself of " it—to the ears of the official scribe this sounds better. Similarly, no one would ever dream of writing so indecently of a Government store, as did Lord Fisher of battleships, when he wrote " scrap the lot." No ! The article is " brought to produce." But we tend to become recondite, for this would be found only within departmental cloisters, where he must walk who is interested, if he would savour the rarer niceties of " officialese." It is, however, by no means a dead language, as might easily be imagined—it grows. The moloch of the clerical machine grinds out for its purposes words to its liking. Such a one is " rendition " —an obsolete word, resuscitated to serve Reports and Returns, and an abstract noun at that.

Since the beginning of the XVIIIth century, the written tongue of the Army has suffered in its style ; how much, a cursory glance at Wellington's orders will show at once. He was both aristocrat and iron disciplinarian, and he and his officers very definitely stood on the bridge and thence drove their hard-living, hard-drinking, turbulent men, of whom he wrote home that they " behave terribly ill," and that " they are a rabble who cannot bear success more than Sir John Moore's army could bear failure." [1] The Army may have been all that he asserts of it, but it was not for lack of leadership or the terse words in which to express it. The manners of the officer, his outlook, and the age he lived in, are reflected in the dispatches and orders of that time,—as must always be the way. And when we turn to them, what do we see ? Individualism rampant ! No matter of what rank or proficiency, the individuality of the leader is expressed there ; it stands out. Take this example from the report of a captain of Engineers :

" I do not hesitate to declare that I place the utmost reliance on the resources of the place, and consider them such as ought to make a good and ultimately successful defence."

[1] Napier's *History of the Peninsular War.*

Here, a soldier speaks; here, in what he says, is nothing woolly, nothing vaguely safe. To-day, officially we do not write like this—the virility is gone, the touch of personal authority. Let us take a few random samples, but simple ones, picked from those dealing with the day's routine.[1] They will give us a better idea of the style and form then in use—the style and form of the ordinary, military scribe of routine. They deal with little matters of discipline and administration, and are such as would be drafted by little men, average clerks or average officers. Here is one, an order for Orderly Officers:

> "In like manner, the orderly officer in each corps must do the duty of the Adjutant when he may be absent from his lines. When an order is received, there must be no delay in obeying it, and for this the commanding officers of corps are responsible."

And another,—on administration:

> "The officers of companies must attend to their men in their quarters, as well as on a march, or the army will very soon be no better than a banditti."

In the two paragraphs above, mark the abstract nouns and the passive verbs, and note how few there are; mark also the simple, decisive words of the order. Compare, again, the direct brevity of:

> "Officers commanding detachments are to report their progress to Head Quarters by every opportunity."

with the same thing, as it might well appear to-day:

> "Reports in regard to the completion of march programmes will be submitted by officers commanding detachments to headquarters as and when the course of operations allows of such action being taken."

It is particularly worthy of note how in order after order there is the personal touch of authority,—the "I" of the superior to the "You" of his subordinate, coupled with the active verb; the Commander himself insists, orders, urges, directs, desires, requests, appeals, and regrets—it is not done for him, in the passive, by his staff. To modern ears the language may appear stately and, even at times, pedantic, but this personal note of authority is never missing—the tone may be heard in the following:

> "The commander of the forces requests to have returns of the several men missing from their regiments on the march of the 10th Inst."

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[1] See Gurwood's *Selection of Wellington's Dispatches and Orders.*

The officer of the Napoleonic wars—and Wellington in particular—was, whatever his faults, never woolly-minded, never evasive; his staff never "regretted" for him. See how Wellington, in one of his General Orders, deals with official "regret":

> "The officers of the Army should recollect that it is not only no degradation, but it is meritorious for him that is in the wrong to acknowledge and atone for his error."

To sum up: if it were to be asked what is the main quality which distinguishes the written tongue of the armies of Wellington from the "officialese" of to-day, the reply would be the clear, personal note which rings all through it: there is not there the standardized formalism which now cloaks official utterance.

What then has brought it about that we write this characterless tongue? Democracy, numbers, standardization, the submergence of the individual in the mass, and, above all, swollen clerical staffs and their power—these all have assisted in evolving "officialese." And the soldier, who necessarily leans on the civilian, has marched with him, to copy his ways. Does not the Member of Parliament, when in the House, solemnly and invariably state that "The answer is in the negative," when all he means is a simple "No"? "Officialese" is the offspring of the clerical machine, and a symbol of the corporate power of the staff. Is it symptomatic of lost leadership in a characterless world of standardization? Be this as it may, it is, nevertheless, a part of our life; its cloudy vaguenesses fill our office hours; and in its service Time waits. It serves its purpose now, but will it continue to do so in the era of mechanization, which is upon us? Is it quick enough, terse enough, decisive enough, for what will be required of the mechanized soldier and, still more, of his leaders in the future?

As a mental exercise it is stimulating, and as a pastime, not unamusing to reconstruct the routine draft, denuding it of the abstract noun, replacing its passive verb by an active, and eliminating the other well-known stigmata of "officialese." Then, how the swollen memo dwindles! how the minute shrinks! even words of common habit become alive and walk up and down in the mind of the writer!

"But," the reader may well say, turning back to some paragraph, "this fellow is himself tainted with the very evil he so decries." Quite true! Are we not all, who are servants of the State, soaked in "officialese"—so true, indeed, that the writer dare point no moral to adorn his tale.

FLYING BOAT FALLACIES[1]

By A. S. P.

THE opening of an Atlantic air route as a scheduled journey is very imminent, and we learn that some four-engined land-planes, specially built for experimental use on the northern route, are being constructed in this country. Another British firm is constructing a special double-design, in which one flying boat is aided in leaving the water by being carried pickaback and launched from a second flying boat. Some regular crossings of the southern Atlantic via the Azores and Bermuda are to be made by Short's flying boats this summer. American and British interests are to unite in the effort to make the Atlantic air route a commercial proposition in the near future. It is of interest, therefore, to weigh the comparative merits of land-plane and flying boat for this task and at the same time to assess them as competitors for fulfilling our Imperial needs.

Not many years ago, those in authority in this country laid great stress on the importance of flying boats and the need for their development in the interests of the Empire. A great deal of money has been expended to further this aim, and a mass of valuable information has been obtained. But do the results justify further heavy expenditure in this direction? Is the flying boat intrinsically superior to the land-plane, either as a transatlantic vessel or for general utility throughout the Empire? As a maritime nation, grateful for the prosperity and dignity which command of the seas has brought to us, we naturally turn seawards when considering development as an air Power. It is frequently asserted that Britain must become mistress of the world's air routes as she did of the seas in the past. Will this be attained most speedily and permanently by the development of giant flying boats or by concentration on the land side of aviation?

There is little doubt that the fact that their aeroplane is capable of alighting on water gives a comfortable feeling of security to its occupants during an ocean crossing. Although this point of view is important commercially, it appears of less importance to the military mind. Fears of an ocean crossing by air are soon banished by experience; then the type of

[1] This article deals mainly with the utility of the flying boat for such purposes as Imperial communications. For other aspects of the subject, readers are referred to the article on "Flying Boats and the Protection of Shipping," which appeared in the JOURNAL for November, 1935, p. 714.—EDITOR.

machine quickly becomes immaterial. But, even if we accept that the moral effect on fare-paying passengers of using flying boats for trans-oceanic passages is great, to what extent is this confidence justified in the event of a forced landing? The advantage of being provided with an unlimited landing area, unobstructed as so many land emergency grounds may be, is undoubted. But the possibility of the surface of the sea being unfavourable is great. Stormy conditions and an unpleasant swell are both likely to interfere with and hazard the actual alighting. In the case of home waters such conditions are more prevalent than those most desired. During the winter months, ideal conditions are probably limited to twenty-five per cent. of the time. Having alighted, the flying boat's troubles and serious dangers may be said to begin. When examined casually, the flying boat hull is pleasing and conveys an impression of strength. Obviously, however, in order to attain flight, any aircraft structure must be limited for reasons of weight; it is not comparable, therefore, even in theory with the structure of a ship. The enormous stresses and strains to which the joint structure of hull and wings is subjected, when operating under bad sea conditions, are liable to cause serious distortion or fracture in the main members. A closer study of the craft also reveals the alarming weakness of a part not found in the land-plane, namely, the wing floats. These members, placed at either wing extremity, maintain the balance of the aircraft when on the water in the same way as outriggers do on a frail canoe. Again, stoutness is sacrificed in the interests of weight, and the frailty of this construction is the more alarming in the light of the side-buffeting to which it may be subjected in a rough sea. A stronger and more convincing alternative to the wing float has been discovered by designers in the form of a stub wing, but very considerable difficulty has been experienced in developing this and as yet it is uncommon even in the more up-to-date machines. Whatever technical form this essential component may take, it must always be the Achilles' heel, the inherently weak spot, in these aircraft; its failure will inevitably entail disaster through causing the boat to capsize, when total loss is almost certain to follow.

Apart from the structural weakness of this particular feature of the flying boat, it may be as well to examine the question of strength as a whole. A great future has been forecast for an ocean-going type, capable of riding out the worst storms likely to be encountered; but let us recall the heavy casualties suffered by stoutly built ships in the last year, or let us visit a great port like Southampton and see the damage to their upper works sustained by Atlantic liners in bad weather. Then we must realize how wild are the prophecies for ocean-going aircraft. In view of these weaknesses and limitations, we may well

ask whether the flying boat has any real advantage over the land-plane in the event of an involuntary landing. Will it not be equally at the mercy of the waves? In its own element over the land, the land-plane can with skill and experience, be brought to safety and to rest, provided it can find a place suitable to alight on. But the flying boat, after a forced landing, remains at the mercy of the wind and sea. Apart from the requirements of building necessary in order to make landing in the open ocean reasonably safe, why should such landings be necessary? Except for refuelling *en route* and thereby increasing efficiency load, there seems to be no very good reason for calling a halt in mid sea.

What advantages, then, can we claim for the flying boat in passage, except the somewhat mythical one of being able to alight on the water with safety? The whole purpose of aircraft development is surely not how to make involuntary landings safe, but how to avoid them altogether. The improved reliability of aeroplanes in general will, therefore, reduce and finally abolish any safety forced-landing advantage now attributed to flying boats.

The outstanding characteristic claimed for the flying boat by technical authorities is its load-lifting capacity when taking off. It is justly stated that they lift comparatively heavier loads than their land counterparts. Two factors, sometimes overlooked, account for this: working on the supposition that an unlimited take-off run can be found for the flying boat, higher wing-loading in the initial stages of take-off has been permitted to these craft than to the land-plane. A considerably longer run has therefore been allowed in experimental test work for them than for land craft. It is interesting to note, however, that, due to our recent awakening to the need for improved performance, the latter are, in future, to have a considerably increased wing-loading. It is recognized that this will entail an increase in aerodrome areas also, but it is none the less accepted. Now to what extent are we justified in assuming that unlimited natural aerodrome space is generally available for the flying boat? How many existing harbours not restricted by essential shipping and other obstructions are there? Not perhaps so many as we are inclined to think at first; and those which do exist are not always at the most convenient places from a strategical point of view. The keen supporter of flying boats will retort that the ocean extends almost indefinitely beyond the harbour bar. But how often will this supply the ideal surface from which heavily laden craft can gather speed up to 60 knots? Storms are not by any means the sole cause of unsatisfactory sea conditions. That more unaccountable phenomenon—the ocean swell, is almost the worst condition with which the flying boat pilot has to contend, while the " dead flat calm," which

appeals so much to " bad sailors," doubles the effort necessary in leaving the water for flight. The perfect aerodromes, which we are told nature so graciously provides, frequently have the unfortunate habit of proving far from satisfactory at the critical moment. We should also bear in mind that these changing conditions are more prevalent in our home waters than in many overseas. Experience of Mediterranean and tropical sea conditions, where at present commercial flying boats chiefly operate, is not necessarily a fair test of things to be expected elsewhere.

Air transport now compares very favourably with its competitors in reliability; but regularity in air traffic is still open to interference by weather. To-day, if conditions permit, the departure and arrival of aircraft to schedule and their safe passage between points is reasonably assured. In the operation of flying boats, similar passage reliability can be accepted, but an additional factor is introduced in their use. Good flying weather may prevail on a route, but this is no guarantee that sea conditions at either end are equally good or even suitable for a flying boat to take off or alight.

Again, even comparatively sheltered waters have an inconvenient habit of remaining still only on very rare occasions. A flying boat, rocking and pitching at its moorings, is not a platform conducive to accurate and detailed maintenance work; tools and vital parts are easily dropped, not on to a hangar floor, but to the bottom of the sea, and it is not always possible to place ladders or platforms which are often necessary for such work. Attempts to overcome this difficulty have been made by the use of special attachments from which to work, but, in practice, they are found to be both unstable and inadequate. The maintenance of any aeroplane in a serviceable condition is a specialist task which necessitates much careful detailed work. Another trouble is the corrosive action of sea water and fouling due to barnacles, which greatly add both to the work and the cost of upkeep of metal flying boats, thereby increasing the running costs. For cleaning, the boat has to be beached or brought ashore, necessitating special equipment on the site used for this purpose. Major overhauls and repairs can only be done at bases where the boats can be taken out of the water for this purpose. These must possess all the plant required for major work on any type of aircraft, and, in addition, cranes, slipways, capstans, and many other expensive fittings must be provided. Enthusiasts are wont to ignore these matters when they argue the independence of flying boats for operating as compared with land-planes.

Flying boats are far more intricate in design than ordinary aeroplanes; not only does the structure require exceptional care, but there are many technical problems connected with hull efficiency. For taking off, and in order to overcome resistance, the under-water surface must be so

proportioned that the boat will lift as it gathers way; without this the wing surfaces would not be able to lift the whole load. It is not necessary to dwell on the idiosyncrasies of water-planing forms, for the problems unsolved are innumerable. This complication, added to that of normal aircraft design, must account to some extent for the lag which the development of flying boats shows over land-planes.

The cost of this super-complicated vehicle is at present nearly double that of a comparable land-plane. The former now costs, in this country, about £1 per pound weight of structure, whereas the highest form of land-plane works out at about ten shillings per pound weight.

For war purposes it is essential that the aircraft industry output should be capable of rapid expansion. Any specialization in plant or workmanship complicates expansion and must retard that rapid development of mass production which will be necessary. Diversion to build a specialist class of craft, such as the flying boat, is, therefore, undesirable in the national interest. The operation of this specialized type of craft also requires personnel with a knowledge of seamanship peculiar to their work. Imperial Airways, in preparing for expansion of their flying boat services, have found it necessary to provide technical schooling in order that crews may be fitted for their task. Highly specialized craft and personnel are undesirable if their use can be avoided: both in peace and in war demands will be made for rapid output of work and man-power, and a specialist nucleus cannot assist to these ends to the same extent as the more standardized types.

The efficiency of aircraft commercially is gauged by pay-load capacity. Military aircraft are judged to some extent by their load-lifting, though not to the same degree. A flying boat, in addition to the maintenance gear already mentioned, must carry an anchor, cable, rope, and a number of other items peculiar to sea-going craft. The total weight of these additions is by no means negligible and materially reduces the efficiency output. A flying-boat base requires the usual transport services connected with an aerodrome, and of course the usual buildings and equipment; but, it also necessitates using a considerable number of marine craft, varying from pinnaces to small dinghies; these, in turn, require a further specialist class of personnel—another expense to be added to overhead costs. It must be realized, too, that a fuelling tender cannot come alongside the light structure of an aircraft in unfavourable weather, and that there will be frequent occasions when essential services by boat from shore to craft will have to be abandoned or delayed; apart from bad weather, even difficult tide conditions may interfere with this work. For these reasons it is not possible to guarantee a programme of scheduled services with flying boats.

Having considered at some length their defects and limitations, let us examine the advantages claimed for flying boats. They are reputed to be able to operate for long periods away from their base, without any special facilities. It is true that they can proceed to an advanced operational area where there are sheltered waters, and work satisfactorily from there, but they require fuel supplies and other necessities to be dumped nearby, and these have to be transferred to the flying boats by some form of water transport, which can usually be found locally. Land-planes operating from an advanced landing ground for short periods also require supplies; they are normally provided by road transport to the landing grounds, and these same vehicles are probably capable of carrying spares. There is no striking contrast, then, between the needs of the two types, except as regards the necessity in the latter case for an aerodrome or landing ground. Once the world's air routes are well prepared—and they are rapidly becoming so, there can be few essential operational areas which are not within the radius of action of land-planes. The flying boat will, of course, always remain the perfect survey craft by which unused and undeveloped routes may be surveyed. As air traffic expands and becomes a commonplace, the chain of aerodromes will become greater and the links will increase. Aeroplane efficiency and reliability will outstrip our present-day notions. The crossing of the Atlantic or any ocean by air will then be no unusual event.

As a specialized craft for a specific purpose, like survey, outside convenient operational range of an aerodrome, the flying boat justifies itself. As a flying tender or mother-ship to advanced points at which it is desired to feed other aircraft it may be of value. As a usurper or substitute for the normal land-plane, it has few advantages to offer. With improved technical development, particularly in engine-power efficiency, the aeroplane will more than outstrip its sea competitor. Aircraft design will overcome the present need for huge aerodrome space, and involuntary alighting will become as uncommon as failure in a main-line railway. The normal medium from which to operate aircraft will then be the land. At present, the operation of land-craft is simpler, more certain, and more economical; concentration on this task is likely to bring greater results. Money expended in the development of flying boats might be put to better purpose by developing land-planes and providing for their needs. Both civil and military aviation might do well to examine the problem now in order to ensure that future effort is not divided. In fact, giant flying boats are not likely to prove the keystone on which to build Britain's future air supremacy.

THE INTERNATIONAL SITUATION

THE REOCCUPATION OF THE RHINE ZONE

GERMANY

ON 7th March, German troops marched into Cologne, Coblenz, Frankfort-on-Main, and Mainz, and crossed the Rhine by train to enter Trier and Saarbrücken. Military air squadrons were also established at Düsseldorf, Frankfort, Mannheim, and Cologne. The following day it was officially announced that the demilitarized zone was being taken over by nineteen infantry battalions and thirteen batteries of light and heavy artillery.

Germany, seizing the opportunity of the preoccupation of the nations with the war between Italy and Abyssinia, thereby committed what Mr. Eden described at the League Council a week later as being " a patent and incontestable breach of the provisions of the Treaty of Versailles . . . and of the Treaty of Locarno." There was great national rejoicing because the last of the restrictions imposed upon her after the War had now been shed.

In a long Memorandum sent to the signatories of the Locarno Treaty on the day of the occupation, Herr Hitler sought to justify this move on the following grounds :—

(*a*) That it had been pointed out as long ago as May, 1935, that the pact entered into between France and Soviet-Russia was not compatible with the Locarno Treaty.

(*b*) This new Pact [1] had nevertheless been persisted with, and was clearly directed exclusively against Germany.

(*c*) France was, thereby, assuming obligations in case of a conflict between Germany and Soviet-Russia which were quite outside the League Covenant.

(*d*) The Locarno Treaty (Rhineland Pact) was not based merely on the guarantee of Britain and Italy, but primarily on obligations for the relationship of France and Germany. It aimed at securing peace in Western Europe by the renunciation of the use of military force by Germany on the one hand, and France and Belgium on the other.

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[1] See p. 409 of this JOURNAL.

(*e*) The situation had been intensified by an alliance treaty between Soviet-Russia and Czechoslovakia on directly parallel lines to those of the Franco-Soviet Pact.

(*f*) In these circumstances " the Rhine Pact of Locarno had . . . practically speaking, ceased to exist."

(*g*) In the interests of the primary right of the German people to the protection of their frontiers and to the preservation of defence possibilities, the Government had from that day restored " full and unlimited Reich sovereignty in the demilitarized Rhineland zone."

The Memorandum then made a number of new proposals for the future pacification of Europe, which, as they have already called forth a host of counter-proposals and seem likely to evaporate after many futile discussions, it does not seem worth recording in detail.

FRENCH REACTIONS

Needless to say, reactions in France to this new move on the part of Germany were lively and resentful in the extreme. At one time there was considerable anxiety lest the French Government might make some counter-move of a military character which would precipitate a clash on the frontier. It was obvious, however, that it could be of no advantage to France to adopt a role which might lay her open to an even more serious charge of aggression than that which could be levelled against Germany, who, after all is said and done, has only re-entered into military occupation of her own territory.

M. Sarraut, as Prime Minister, broadcast a long speech on 8th March denouncing Germany for using the Franco-Soviet Treaty as a pretext, and the forthcoming French elections as an opportunity to violate her engagements. The Council of the League had, he said, been informed.

THE LEAGUE OF NATIONS

Mr. S. M. Bruce, High Commissioner in London for Australia, as President of the League Council duly received the French note of 8th March calling for the urgent summoning of the Council.

Preliminary discussions having taken place between the signatories of the Locarno Pact, other than Germany, it was arranged, on the invitation of the British Government, that the League Council should meet in London.

The Council duly met on 14th March, and having heard the British, French, and Belgian representatives, decided to invite Germany to be represented at the next meeting. In accepting the invitation, the

German Government made it conditional on their representative taking part on equal terms and their recent actions and peace proposals being considered as a whole.

The Council met again on the 17th and 18th March, and listened to speeches by the Turkish, Soviet, Italian, Polish, Rumanian, and other delegates. On 19th March, Herr von Ribbentrop, Ambassador-at-Large made a long speech to the Council justifying Germany's actions and emphasizing that, with the termination of the Locarno Treaty, the great burden of " discriminating conditions " had been lifted from her people.

The Council adjourned to study Herr von Ribbentrop's arguments. On reassembling, a vote was taken on the Franco-Belgian resolution whereby the League Council formally declared that Germany had infringed Article 43 of the Treaty of Versailles, and the Treaty of Locarno. Twelve nations voted in favour of the resolution, Chile abstained, and Ecuador was absent.

Since then, the deliberations of the League Council have given way to a somewhat acrimonious exchange of views between the Locarno Powers and Germany. Moreover, the Council's attention has been diverted, by Italian successes, to the war in Abyssinia, which had quite sunk into the background *pro tem.*

After a meeting in connection with the latter problem on 20th April, the Council adjourned until the French Elections had taken place, and was due to meet again on 11th May.

THE LOCARNO POWERS MEMORANDUM

Later on 19th March, the representatives of the Locarno Powers, other than Germany, drew up a Memorandum, which was published as a White Paper (Cmd. 5134) under that date.

This assumed a somewhat tutorial tone towards Germany in the matter of " respect for treaties," and stated that the General Staffs had been instructed to enter into contact with a view to arranging the technical conditions in which the obligations which are binding on them (the signatory Powers) should be carried out in case of unprovoked aggression. The German Government were invited to lay before the Permanent Court of International Justice at the Hague the argument as to whether the Franco-Soviet Pact was incompatible with the Treaty of Locarno. France agreed to this being done.

Germany was further asked to stay her hand in regard to any further military movements into the Rhineland and any fortifications there. France and Belgium equally undertook not to despatch any extra troops into the zones adjoining her frontier.

Then came a proposal to create an international force to occupy a zone contained between the Belgian-German and Franco-German frontiers on the one side and a line running approximately 20 kilometres to the East of them, to be followed by the setting up of an International Commission to supervise carrying out the obligations undertaken by the Powers which had formed this force to see that Belgium, France, and Germany were carrying out their agreements.

Finally, the Memorandum proposed an international conference to examine the system of collective security; the effective limitation of armaments; the extension of economic relations; and Germany's proposals for non-aggression pacts with neighbouring States, the question of colonial equality, and the divorcing of the League Covenant from the Versailles Treaty.

THE GERMAN REPLY

To this Memorandum Herr von Ribbentrop was authorized to make a provisional and non-committal reply on 24th March, pending the German Elections. These took place on 29th March and resulted in an overwhelming verdict for Herr Hitler and his recent policy.

On 1st April, the German reply was received by the other Locarno Powers. This included the following points:—

(1) Germany "rejected" the Locarno Powers' Memorandum and the idea of "Staff Talks."

(2) It was claimed that the demilitarization of the Rhine zone constituted a denunciation of the fourteen points of President Wilson on which the Armistice was concluded in 1918.

(3) Germany was not prepared to submit her case to "a body which, in the most favourable case, is only in a position to judge the legal aspect, but not the political aspect"—this refers to the Court of International Justice at the Hague.

(4) It is proposed that the tasks confronting the statesmen of Europe shall be dealt with in three periods:—

(*a*) A period of four months for cooling down.

(*b*) A period for negotiations.

(*c*) A period for dealing with supplementary matters, such as disarmament, economics, etc.

(5) Germany will undertake not to reinforce her troops in the Rhineland during the first period, if France and Belgium will give a similar assurance. She also undertakes not to move troops nearer the frontier. It is proposed that representatives of England, Italy, and a neutral Power shall act as a commission to guarantee these assurances.

(6) Germany, Belgium, and France, under the leadership of the British Government, to enter into discussions for the conclusion of a twenty-five years non-aggression and security pact between France and Belgium on the one hand and Germany on the other; Britain and Italy to be guarantors.
(7) An air pact to supplement this agreement is also proposed.
(8) All publicity or education tending to "poison the relationship" between the peoples of Germany and France to be avoided.
(9) Germany is willing to re-enter the League of Nations, on the understanding that the questions of colonial rights and the separation of the Covenant from its Versailles setting are cleared up.
(10) It is proposed that conferences shall be convened to check competition in armaments and to humanize their use.

THE FRENCH REPLY TO GERMANY

A highly critical reply to the German proposals was issued by the French Government on 8th April, accompanied by a long and verbose review of international relations in the abstract and yet another Peace Plan. This latter included a proposal that when international treaties have been broken, "sanctions, reaching as far as force, shall be taken with a view to the re-establishment of international law." To this end all the States "associated with the European framework" shall place all their aerial and naval forces at the disposal of the Council of the League of Nations.

This is merely a return to the repeated efforts of France to get other Powers, especially Britain, to place their fighting Services at the free disposal of a collection of foreign representatives—the majority being small nations whose contributions to "collective security" would be negligible, in the expectancy that they would use those forces at her behest to ensure French security. There is also an implied suggestion, yet again, of a United States of Europe "within the framework of the League"—another notion dear to French foreign policy. The advocacy of severe sanctions is remarkable in view of the French attitude on that subject as affecting Italy at present.

STAFF TALKS

In spite of Germany's "rejection" of the project, representatives of the Navy, Army, and Air Staffs of Britain, France, and Belgium met on 15th April to make provisional plans and arrangements for co-operation in the event of an unprovoked attack by Germany on France or Belgium.

It is not quite clear why, in view of the fact that the Locarno Treaty was signed in 1925, no such " talks " have been held until now ; or, if they have been held without the amount of publicity given to them at this time of tension, why they should have been necessary now. It would also seem to have been in keeping with " the spirit of Locarno " that there should have been " staff talks " with representatives of the German fighting Services, in case Britain were called upon to assist that party to the Pact against an aggressive France—or Belgium !

In any event, it does not require any inside knowledge of what transpired to be certain that, with our heavy commitments in watching Italy fight Abyssinia, and the low state into which our own fighting Services have been allowed to fall, we could only have given cold comfort to our visitors.

BRITAIN'S POSITION

There can be no question but that the position in which Britain finds herself as a prominent supporter of the League Covenant and a diplomatic buffer between the quarrelling European States is becoming more and more invidious and dangerous to our own national and Imperial interests and security.

The greater part of our Navy—which is inadequate for its Imperial responsibilities, a large proportion of our Air Force—which is insufficient for Home Defence, and military reinforcements—which severely tax our small Army, have been diverted from their normal duties and concentrated in or near the Eastern Mediterranean. If this was necessary because Italy's onslaught on Abyssinia imperilled Egypt and our sea-communications with our Eastern Empire, those forces should have been used to prevent her from going further with that project—League conventions or no League conventions. If they were sent there purely to give a lead to the other Powers in carrying out a joint obligation under the Covenant, it is clear now that we have failed in that purpose, and merely antagonized Italy without controlling her. If our forces were and are too weak for single-handed action, they are a menace to our world position in their present situation. In any event it is clear that it is now too late to stop Italy from working her will in Abyssinia.

Germany has once again compelled the nations to face a *fait accompli*. Only force would have made her withdraw her troops from the Rhineland, and, as she well knew, that was not forthcoming. We have joined in the chorus of " condemnation," which already is little more than a hoarse whisper. Once again the League has been completely flouted by a nation glorying in its independence. On this occasion the matter has been of less personal concern to Britain than was the Italian episode.

In any case our military effort on behalf of the League and the offended Powers has now been reduced to " Staff Talks "—not a very convincing contribution to " collective security."

We have reached a stage where clear thinking and plain speaking have become vital to our existence. For years we have replaced the means for safeguarding ourselves by pathetic trust in international goodwill and ear-pleasing phrases. Now we have been brought face to face with the fact that the standard of morality amongst the nations as a whole is not yet so high that the " written word " is an unbreakable bond. Moreover, when such a bond becomes unendurably irksome to one of its signatories and that nation feels strong enough to break it with impunity, it will break it unless prevented by force.

The British people, being of the blest in the world, only want to keep what they have and to live in peace. The majority of other civilized nations also want to live in peace ; but they are either discontented with their lot, or fearful that what they possess will be wrested from them. The idea that we should join with a majority in *enforcing* peace, has led to our risking our own security and that of the vast community of our peoples overseas whose fate is wrapt up with the Mother Country—never more so than within the past twelve months.

For some two years to come there will still be deficiencies in our fighting Services such as should make us confine ourselves strictly to British interests and security. Of late we have been gambling with our very existence in the name of Treaties, Pacts, Agreements, and Covenants which have proved but ephemeral guarantees of peace. When those deficiencies have been repaired, and not until then, shall we be able to throw our whole weight into the scales of what *we* deem right and just.

THE FRANCO-SOVIET PACT

The Franco-Soviet Pact was signed by the Foreign Ministers of the two countries at the Quai d'Orsay, and came into force on 27th March. The following are the main points :—

Art. I.—If either France or Russia is threatened by any European State, they will immediately consult as to the measures to be taken for the enforcement of Art. X of the League Covenant.

Art. II.—Each country will immediately assist the other if " under the circumstances specified in Art. XV, s. 7, of the League Covenant " either were subjected to unprovoked aggression by a European Power.

Art. III.—In the same circumstances, they undertake " immediately to lend each other aid and assistance in application of Art. XV of the Covenant."

Art. IV.—Nothing in the Pact is to restrict the Leagues duties or the obligations of either party under the League.

All of which means that, while France and Soviet Russia still expect all the other League Powers to come to their aid if they find themselves at war, they are not sure that such aid will be forthcoming in practice—at any rate only after much delay and long palavers, and perhaps attempts to apply non-military " sanctions " as in the case of Italy and Abyssinia. The two countries have therefore returned to their military alliance, and now count on immediate mutual action rather than on a more comprehensive but less certain system of " collective security."

It is a clear admission on the part of France that she no longer regards the League Covenant as the " sure shield " she hoped she had made of it.

THE ITALO-ABYSSINIAN WAR

THE following is a diary of the principal events in the Italo-Abyssinian War :—

20th January, 1936.—On the southern front, Italians report capture of Filtu, 83 miles from Dolo.

21st January.—Abyssinia decreed general mobilization of all available man-power. In Tembien, Italian attack developed into a general battle on a 70-mile front.

22nd January.—General Graziani's troops occupied Neghelli, Ras Desta's H.Q., capturing munitions, military stores, and a wireless station.

23rd January.—In Tembien, Abyssinians claimed to have shot down a Caproni bomber. Fierce battle still raging.

24th January.—Marshal Badoglio claimed complete victory in Tembien. Italian losses given as : 25 Italian officers killed and 19 wounded, 389 Italian soldiers and 310 Eritrean native troops killed or wounded. Abyssinian losses estimated at 5,000. Abyssinians claimed capture of 12 guns, 112 machine guns, and asserted that Italians lost 2,000 killed and 800 prisoners.

26th January.—Ras Desta's withdrawal caused a gap in southern front, which was filled by new army under Dedjasmatch Makonnen, commanding Bale troops.

27th January.—Italians estimated Abyssinian losses during the past week on southern front at 10,000 killed.

28th January.—Heavy rains hampered troop movements on northern front.

1st *February.*—Abyssinia claimed great victory in Tembien; 3,000 Italians said to be killed and 5,000 wounded. Blackshirt Division "October 28" alleged to be wiped out, 33 guns, 75 machine guns, 2,605 rifles and 18 tanks captured; Abyssinian losses 1,200 killed and wounded. Rome admitted loss of 3 guns and about 700 men.

5th February.—On southern front, General Graziani reported strong resistance along the river Dawa. Italian right wing reached a point 46 miles North of Dolo.

9th February.—Seven Italian planes bombed Dessie.

10th February.—Rome stated that 884 officers and men had died in East Africa since the beginning of 1935. Eritrean native casualties reported as 1,036 in January and February on both fronts; 300 native troops deserted into Kenya in January.

14th February.—Ras Nasibu claimed to have driven Italians from Kurati, 50 miles south-east of Sasa Baneh.

16th February.—Marshal Badoglio reported that the battle of Enderta, which lasted from 11th to 15th February, had resulted in the capture of Amba Aradam, over 8,000 feet high, a bulwark of Ras Mulugueta's forces. Italians claimed destruction of modern section of Emperor's Army, all danger to communications removed, and way opened into heart of Abyssinia.

19th February.—Ras Mulugueta reported battle of Enderta as patrol skirmishes with loss of 31 Abyssinians killed and 75 wounded.

21st February.—Italians advanced further southwards towards Amba Alagi without encountering resistance.

23rd February.—Italians on southern front withdrew in Negelli sector, owing probably to difficulty with communications from Dolo.

24th February.—West of Aksum, Ras Imru's forces raided towards river Mareb and claimed 15 munition dumps, two depots of 30 tanks and some lorries destroyed, 412 white Italians killed.

28th February.—Rome reported occupation of Amba Alagi, 40 miles South of Makale, without resistance. Marshal Badoglio attacked Abyssinian forces in Tembien on two flanks.

2nd March.—Italians claimed total defeat of Ras Kassa's army in Tembien. Ras Seyoum's army is believed to have escaped.

5th March.—Italian aircraft bombed British Red Cross unit at Quoram, on northern front. Seven patients killed. Italian Second Corps reached river Takkaze in pursuit of Ras Imru.

6th March.—Italian aircraft bombed British Red Cross unit at Quoram for the second time.

7th March.—Italian aircraft bombed British Red Cross unit at Quoram for the third time.

8th March.—Ras Mulugueta, Abyssinian War Minister, died of pneumonia, due to exposure in the field.

9th March.—Italian losses in Tembien and Shire reported 19 officers killed, 67 wounded, 236 Italian soldiers killed, 831 wounded, 37 native troops killed, 149 wounded. Rome estimated 15,000 Abyssinians killed and wounded during that period.

17th March.—Thirty Italian aircraft bombed Jijiga on three successive days. Finnish Red Cross unit suffered considerably.

28th March.—Italian aircraft bombed Gondar, destroying French Catholic Mission, and Goba.

29th March.—Italians launched big air attack on Harrar. Abyssinians reported all Red Cross hospitals destroyed and French Consulate damaged.

1st April.—Marshal Badoglio reported defeat of Emperor at the head of Imperial Guard near Quoram, in Lake Ashangi zone; 7,000 Abyssinians reported killed.

2nd April.—Abyssinians claimed capture of large quantities of Italian arms and estimate Italian losses at 700 white and 2,000 native troops killed in Ashangi battle. Abyssinians admitted loss of 887 killed and 345 wounded. Italians occupied Gondar without resistance. Heavy rain began to fall.

Use of Gas.

8th April.—British Memorandum on use of gas by Italian forces in Abyssinia was distributed in Geneva. British allege first use of gas on 30th December, 1935, and on many subsequent occasions. Doctors Melly, Macfie, Junod, and Brophil confirm use of gas by Italians.

10th April.—Mr. Eden stated that Italians declared 259 tons of poison gas in transit through Suez Canal. Italian planes bombed Daggah Bur and Sasa Baneh with gas.

12th April.—Dr. Van Schelven, Dutch Red Cross, stated loss of 64 ambulance mules from mustard gas, dropped by Italian planes.

14th April.—Italian troops from Gondar reached Lake Tana.

15th April.—Italian troops reached Waldia, 50 miles north of Dessie.

16th April.—Italians occupied Dessie without resistance.

20th April.—Italians launched offensive in Ogaden and claimed complete victory on river Giano Gobo.

24th April.—Rome reported total casualties from 3rd October, 1935, to 15th April, 1936, as 1,030 killed, 105 died of wounds, and 53 missing; total dead from 1st January, 1935, to 15th April, 1936, 1,891.

25th April.—Italian Eritrean troops occupied Warra Hailu, 45 miles South of Dessie. On Ogaden front, General Graziani's troops captured Grabrehor and aircraft bombed Sasa Baneh, Bulale and Daggah Modo. Heavy rain fell.

29th April.—Italian mechanized forces occupied Makfud, 106 miles South of Dessie. Rain hampered operations on southern front.

30th April.—On southern front, Italian troops captured Sasa Baneh and Bulale after fierce fighting. On northern front, Italians occupied Debra Tabor, South of Lake Tana.

2nd May.—The Emperor of Abyssinia, Haile Selassie, fled to French soil at Jibuti. Addis Ababa was given over to pillage and fire. The foreign legations had to defend themselves against riotous mobs. (The British Legation guard consists of one company of Indian Infantry and a small detachment of Indian Cavalry.)

5th May.—Italians entered Addis Ababa.

THE LEAGUE OF NATIONS

Since the Committee of Thirteen politely rejected the Hoare-Laval Peace Plan on 19th December last, there must be many people who regret that that ill-fated attempt to secure terms for Abyssinia was treated with so much contumely. It is now quite evident that Abyssinia will fare far worse in the end than she would have could that Plan have been made a basis for negotiations. The League has again failed ignominously to stay the way of an "aggressor." Save for half-hearted sanctions and a wealth of objurgation and condemnation, the Council has been quite unable to get constituent members to take concerted action against Italy.

Following a meeting between Mr. Eden and M. Flandin, what appears to have been a last despairing effort to negotiate peace "in the spirit of the Covenant" was initiated when, on 3rd March, the Committee of Thirteen sent an urgent appeal to both belligerents "with a view to the definite restoration of peace." Meanwhile, the Committee of Eighteen continued to examine "the exact measures to be taken . . ." for the application of the oil embargo. It can be said at once that the efforts and deliberations of both Committees have resulted in exactly nothing.

On 20th April, the Council met at Geneva. The President of the Committee of Thirteen read their report admitting failure. The report added, " It required not more than one hour of conversations between the Chairman of the Committee, the Secretary-General of the League, the Abyssinian Delegation, and representatives of the Italian Government, to make it clear without possible doubt that negotiations could not be conducted in the spirit of the Covenant."

The British Foreign Secretary, in a speech after this pronouncement, said it was the duty of the League at least to maintain existing economic and financial sanctions. He expressed the readiness of his Government, in company with other members of the League, to consider the application of further sanctions. But France, with what she regards as being a German menace looming large again on one flank, is in no mood to increase the tension with her neighbour, Italy, on the other. It is quite clear, now, that Oil Sanctions will not, because they cannot collectively, be applied to Italy. Moreover, peace will be imposed by Italy " without," and not " within," the framework of the Covenant.

It is obvious that the time has come for a very frank appreciation of the situation as to the whole status of the League: the Corfu incident, the Chaco War, Manchukuo, Abyssinia, and the Re-occupation of the Rhineland—these are some of the milestones strewing the path of that international idealism which created a body regarded by too many people as a sort of super-State, and which produced the notion that " collective security " could be a substitute for our own armed forces.

THE SECOND LONDON NAVAL TREATY

A NEW Treaty for the "Limitation of Naval Armament" was signed in London on 25th March, 1936, between Great Britain, the United States, and France.

Details of this agreement will be given in the August JOURNAL. The outstanding feature is that on 1st January, 1937, we shall once more be free to build the Navy we require.

CORRESPONDENCE

[*Correspondence is invited on subjects which have been dealt with in the* JOURNAL, *or which are of general interest in the Services. Correspondents are requested to put their views as concisely as possible, but publication of letters will be dependent on the space available in each number of the* JOURNAL.—EDITOR.]

KING GEORGE V AND THE ARMY

TO THE EDITOR OF THE R.U.S.I. JOURNAL.

SIR,—The statement in the R.U.S.I. JOURNAL for February, 1936 (page 8), to the effect that His late Majesty King George V held no military rank prior to 1902 is incorrect. Queen Victoria granted H.R.H. the Duke of York (later King George V) his first commission in the Army as Colonel-in-Chief of the Royal Fusiliers in July, 1900.

F. R. WILLIAMS,
Lieutenant, Royal Fusiliers.

9th March, 1936.

NOTE.—*This Correspondent raises the interesting point of whether the "appointment" of Colonel-in-Chief of a regiment necessarily carries with it military rank. For example, a number of Royal Ladies hold or have held such an appointment.*—EDITOR.

THE HIGHER COMMANDER

TO THE EDITOR OF THE R.U.S.I. JOURNAL.

SIR,—Major-General Wavell's lecture, published in the JOURNAL for February, 1936, has given rise to much discussion in Army circles, and there is no doubt that some action on the lines of his suggestions is desirable. May I be permitted to enlarge on the point raised by him of the system of training of the Subaltern in his first ten or thirteen years of service?

The lecturer aptly said that the high commander needs to be a sportsman and a bit of a gambler. We have plenty of the former; the latter, to be a successful one, needs a thorough knowledge of the capabilities of his men and his whole machine and, above all, practice in the art of using them. The young officer is most impressionable in his earliest years of service, and that is the time when his ambition should be fostered more than it is at present. Presuming that the first six years are sufficient for a subaltern to master fully his regimental duties, absorb the military atmosphere, and learn the capabilities of his men and his unit, should it not be insisted on that he spend that period with the unit instead of being sent on courses? And are these courses necessary? Should not sufficient of these subjects be taught by his own unit cadres, the present standards of which are extremely high? I particularly mention this because the financial saving incurred should nearly cover the cost of my further proposals.

The general system of unit training also has a bearing on that of the first six years of a Subaltern's service. Sufficient time is not made available for the tactical training of leaders. This might be attained by the simplification of "Individual Training" and administration. For instance, is not a very much higher standard,

and a more flexible one, reached in the drill of a Light Automatic Section, where mind and body work in unison, than in drill movements *in line*, which require so much practice and which could be replaced by movements in groups of platoons *in fours*? Could not "Individual Training" in general be placed in the hands of specially trained N.C.O. instructors so that the leaders could be taught to lead and teach their men in tactics. A measure of administration could be placed in the hands of administrative officers as explained below.

The young officer, having been well grounded in his first six years, should begin his higher training under the best available officers and with troops placed at their disposal. Why not a Junior Officers' School [1] of one year's duration? The aims of the school should be :—

(*a*) To broaden the officer's outlook and encourage further study.
(*b*) To give a sound tactical knowledge of mixed forces and practice in command.
(*c*) To instil initiative and the taking of legitimate risks.
(*d*) To give any necessary instruction in organization and administration.
(*e*) Finally, to grade officers according to their bent—commanders and administrators—and note down those whose personality shows promise of high command. Here is the nucleus for our unit administrative personnel and the departmental officer, who can find promotion in the higher administrative staff appointments.

Would not some scheme such as this improve the war efficiency and initiative of the officer and, through him, of the Army?

H. R. BRIGGS,
Major, I.A.

22nd March, 1936.

TO THE EDITOR OF THE R.U.S.I. JOURNAL.

SIR,—All those officers who read in the February, 1936, issue of the JOURNAL, Major-General Wavell's lecture on "The Higher Commander," must have been interested in the original ideas suggested and in the statements made by him.

In making suggestions for improvement in the training of officers, General Wavell thought that all officers of five years service and over should be reported on annually as to the rank they are capable of holding in war, and should then as far as possible be trained in the duties of that rank, irrespective of the rank they actually hold. He concluded this by saying :—"It might also help to place the Staff College in better proportion as an institution primarily for the training of Staff Officers and not the 'onlie true begetter' of higher commanders." Again, during the discussion, he said : "With regard to the Staff College, my point really was that I think the Staff College looms rather too much in the opinion of the ordinary regimental officer as the only possible way of reaching higher rank, and that an officer who has not passed through the Staff College is inclined to consider that the prospects of higher rank in his military career are more or less at an end. I think that this is not, and should not, be true, and that it is not a good thing for the Army that many should so regard it."

The point suggests a census of higher commanders, and on reference to the

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[1] See the article on "A Junior School of Tactics" in this JOURNAL, p. 360.—EDITOR.

monthly Army List the following figures (excluding the R.A.S.C., R.A.M.C., R.A.O.C., A.D. Corps, R.I.A.S.C., and I.M.S.) are extracted :—

	British Army.		*Indian Army.*	
Rank.	*P.S.C.*	*Non-P.S.C.*	*P.S.C.*	*Non-P.S.C.*
Field-Marshal	3	2 ..	*Nil*	2
General	7	2 ..	4	*Nil*
Lieut.-General	16	2 ..	3	*Nil*
Major-General	58	14 ..	15	3
Totals	84	20 ..	22	5

From this it can be seen that the rank of Field-Marshal holds out better prospects to the " regimental " officer than any other of the higher ranks !

April, 1936. W. H. K.

CO-OPERATION

To the Editor of the R.U.S.I. Journal.

Sir,—In the November, 1935, Journal, Brigadier M. N. MacLeod, in an article entitled " A New Deal in Tactics," contends :—

(*a*) That the use of tanks was not the real reason for the success of our surprise attack at Cambrai, but success was due to the new methods of artillery fire, without registration.

(*b*) That infantry, as such, are no longer necessary ; because, for the greater part of the War, they merely followed the barrage in the attack and seldom used their weapons.

To deal with (*a*) first :—

As one who commanded a battalion in the infantry attack at Cambrai, I entirely agree with him that our artillery, by their new surprise methods, did dominate and practically silence that of the enemy. This, however, although it was instrumental to our freedom from casualties and the impetus of our advance, was not the fundamental reason for our success. It was the fact that the tanks were able to do in a few minutes what had previously taken the artillery three days to accomplish, i.e., the destruction of the enemy's wire. For this reason alone, the Royal Tank Corps can claim that the tanks were the essential element of the surprise. Apart from this, their close co-operation with the assaulting and consolidating infantry resulted in the capture of all the objectives together with many prisoners and a large number of guns and machine guns.

Brigadier MacLeod argues that because German attacks were sometimes successful without tanks, our successful attacks, such as Cambrai, were not due to tanks but to our new artillery methods. In making this deduction, he does not consider the different conditions—the German wire was always strong and a very decided obstacle ; whereas, ours was often very inadequate and required no special treatment. The German wire had to be cut or crushed to enable the infantry to get forward. But perhaps he does not consider it is any longer necessary to move forward to win a battle or a war, *vide* his contention (*b*) as to the necessity for infantry.

Does he really contend that infantry are unnecessary and that artillery with the assistance of the Royal Engineers can fight a war without their co-operation ? To win a war an army must advance. Does he suggest that the ground won by missile fire will not have to be consolidated before the guns move forward, or that even an infantry escort is not required ? Who is to round up the prisoners ?

Apart from this, he appears to work on the assumption that there is perpetual daylight and good visibility; that night, fog, smoke, woods, etc., do not exist. Does he consider that an enemy with infantry will not take advantage of such conditions to make a surprise attack on his "artillery army"?

The bayonet, besides its undoubted usefulness for "drumming up" (making firewood), will still be required for hand-to-hand fighting in close country or when visibility is bad, when the danger of surprise is greatest. Even should the bullet be used in such conditions at short range, yet the mere possession of a bayonet gives *élan* to the man.

Patrols will still be required at night and in foggy weather, and for these rifle sections only are suitable.

Another article in the same number of the JOURNAL, "The Attacking Power of Infantry," by Captain G. H. Clifton, M.C., with the war experiences contained in it, gives an excellent reply to Brigadier MacLeod.

It must be obvious to anyone with fighting experience that all the present arms of the Service are necessary, and that only by their co-operation can success be achieved.

A. S. THACKERAY,
Brigadier.

Shanghai.
18th January, 1936.

THE FIFTH BATTLE SQUADRON AT JUTLAND

TO THE EDITOR OF THE R.U.S.I. JOURNAL.

SIR,—Your Reviewer, in his letter to the JOURNAL of February, 1936 (pp. 180–81), returns to the charges of want of enterprise on the part of the 5th B.S. at Jutland, and suggests that it might have followed the more enterprising course of the 2nd Light Cruiser Squadron. The functions and manœuvring powers of the two squadrons were, however, vastly different, and it is not apparent in any case why the Rear-Admiral commanding the 5th B.S. should follow the 2nd L.C.S. The 5th B.S. had been engaged under very disadvantageous conditions of light and visibility with a largely superior enemy force for a considerable time, and had suffered considerable damage. The "Barham's" wireless—main and auxiliary—was out of action and her main hydraulic pump disabled. Between decks she was in darkness. The "Malaya's" 6-in. starboard battery was practically disabled, and she had two holes below the water-line which eventually caused a reduction in speed to 20 knots. The available speed of the Squadron was, for the time, little in excess of the battle line. The 2nd L.C.S. was untouched and able to manœuvre at high speed—10 knots in excess of the battle line—and to dodge enemy salvoes should the latter take any notice of it.

The various diagrams showing the relative positions of the 5th B.S. and the other squadrons after 6 p.m. are to a great extent based on guesswork. The tail end of the battle line was for a long time bunched, and it was difficult to avoid overlapping. In addition, all the torpedoes discharged by the enemy destroyers crossed the line at this end and had to be dodged (successfully) by the 5th B.S.

The Rear-Admiral 5th B.S. was not afraid of being cut off in the sense of hazarding his Squadron, but was determined not to lose visual touch with the C.-in-C. if it could be avoided, and to get, if possible, away from the disadvantageous gunnery position. It is difficult to see how any manœuvring of the 5th B.S. could have

improved on the position of our fleet when, at 7.12 p.m., the German Fleet " blundered into the concentrated fire of the centre divisions of the British Battle Fleet " ; but if the Germans had not blundered but had tried to break through to the northward or north-eastward, the 5th B.S. would have been in the most advantageous position to counter it.

It seems hardly necessary to go further into the matter of the so-called amazing neglect of the " Valiant " and " Malaya " to report the enemy breaking through to the eastward after dark. This has been fully dealt with in my article in the JOURNAL of November, 1935 (p. 799), which remains unanswered.

A. CRAIG WALLER,
Vice-Admiral.

21st April, 1936.

THE QUETTA EARTHQUAKE

TO THE EDITOR OF THE R.U.S.I. JOURNAL.

SIR,—May I point out a slight error which occurs in the lecture given by Major-General Karslake on " The Work of the Army after the Quetta Earthquake," published in the November, 1935, issue of the JOURNAL ?

Talking of the disposal of the dead, he states : " We required tons of wood—I believe we used something like 14 tons in all to burn the Hindu corpses." Actually the amounts used for cremation purposes between May 31st and June 28th exceeded 194 tons, of which 75 tons were issued on June 1st. On this particular day special lorries were in use from early morning until late evening, working between the Supply Depot and burning grounds.

A. N. M. WATKINS,
Major, R.I.A.S.C.
(Officiating O.C., Supply Depot, Quetta, at the time of the disaster.)

12th March, 1936.

FIELD SERVICE REGULATIONS

TO THE EDITOR OF THE R.U.S.I. JOURNAL.

SIR,—I see with regret that the regulation providing that " Positions will be described from right to left looking towards the enemy," has passed unchanged into the new issues of Field Service Regulations, Volume II. Were we to write from right to left, it would be natural to describe positions in that order ; but we write from left to right, and it seems strange that we should write down on the left what we see, on the ground and on the map, on the right. What appears on the map as :—

BATH OXFORD LONDON

must be described as :—

" the line LONDON–OXFORD–BATH."

A good parallel to this inversion is the traditional naval ammunition case, concerning which the instructor always told his class : " Top marked ' Bottom ' to prevent mistake."

A. R. CHATER,
Major (Bt. Lieut.-Colonel), R.M.

7th April, 1936.

GENERAL SERVICE NOTES

RECONDITIONING AND EXPANSION OF THE FIGHTING SERVICES

A White Paper (Cmd. 5107), entitled " Statement Relating to Defence," was " Presented by the Prime Minister to Parliament by Command of His Majesty " on 3rd March, 1936. The following is a summary of the contents.

THE GOVERNMENT POLICY.

At the outset, reference is made to the Government's policy on Imperial Defence as outlined in a previous White Paper (Cmd. 4827),[1] and to the developments which have taken place during the intervening twelve months. Recalling the efforts made to establish peace on a permanent footing, it is remarked that the programme of defence expenditure which the country now has to face does not imply any reversal or qualification of those efforts; but is, on the contrary, the indispensable condition of their attainment. It is also recalled that the 1935 White Paper emphasized that " Parliament and people have been warned again and again that serious deficiencies were accumulating in all the Defence Services, and that our desire to lead the world towards disarmament by our example of unilateral disarmament has not succeeded . . . and we are approaching a point when we are not possessed of the necessary means of defending ourselves against an aggressor." These considerations have gained in force during the past year as the international situation has deteriorated. The Government has made an exhaustive examination of the present state of the Services and the present proposals represent nothing more than what is essential.

The " violent and menacing " propaganda in Italy, largely directed against the United Kingdom, reached a point in August, 1935, which compelled the Government to strengthen and redispose our naval forces, and to increase the defences, garrisons, and air forces at Gibraltar, Malta, and Aden, as well as in Egypt. From the 22nd of that month onwards, the situation was watched from day to day by a standing Sub-Committee of the Committee of Imperial Defence—the Sub-Committee on Defence Policy and Requirements, under the Chairmanship of the Prime Minister. The Government had been embarrassed in making the necessary dispositions by the decline in the effective strength of their armaments by sea, land, and air, and by the accumulation of deficiencies. It was only possible to safeguard the position in the Mediterranean and Red Sea by denuding other areas to an extent which might have involved grave risks.

INCREASE OF FOREIGN ARMAMENTS.

The White Paper then proceeds to give a " plain statement " of the recent increases of armaments in " certain other countries " :

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[1] See the JOURNAL for May, 1935, p. 415.

Germany.—Rearmament has been proceeding throughout the year at a steady but rapid rate. There is no concealment, and it has been referred to with satisfaction in the statements of German public men; but regarding the details there is still a great deal of secrecy. In March last, conscription on the basis of one-year service was universally re-established; and the Government announced a peace-time army establishment of thirty-six Divisions with a strength of 550,000 men.

The German Chancellor informed Sir John Simon last March that Germany was aiming at air parity between Great Britain, France, and Germany provided that the development of the Soviet Air Force was not such that revision of these figures would become necessary. What has since occurred indicates a continuous development of the German Air Force.

The Naval Agreement reached with the German Government on the 18th June, 1935, is in a different category inasmuch as it limits the expansion of the German navy to a definite proportion of the strength of British naval forces. Nevertheless, the new German navy, even within this limitation, is an addition to the armaments of the world which cannot be left out of account.

France.—Two-year service was reintroduced last year. The French Air Force is in process of an important reorganization and re-equipment. The barrier fortresses on the north-eastern frontier are being extended at great cost to cover also the northern departments.

Belgium.—Army expenditure shows a heavy increase, and the fortresses on the eastern frontier are being rapidly strengthened and brought up to date.

Italy.—For the past six months, the army has been on a war footing. In October, 1935, it was stated that 1,200,000 men were under arms, and more recruits have been called up since.

The Italian Air Force is being rapidly and completely re-equipped, and is being enlarged.

Soviet Union.—According to the latest official figures, given by a Soviet Minister on 15th January last, the Soviet forces have been increased to 1,300,000 men.

A further increase of the air force is already in progress.

Japan.—The re-equipment of the army is being pressed forward; a comprehensive programme has necessitated the expenditure during 1936–37 of greater sums than have ever before been appropriated in the budget.

The army and navy accounted for 46 per cent. of the budgetry expenditure in 1935–36; the budget deficit was £45,000,000.

The United States.—The annual expenditure on defence has risen from £108,000,000 in 1933–34 to £180,000,000 in 1935–36. These figures do not include non-effective charges (e.g., pensions), which in the case of British estimates for 1935 represented £18,000,000 out of the total of £124,000,000.

THE BRITISH PROGRAMME.

The White Paper announced that a co-ordinated plan for the reconditioning and modernization of our defence forces and defences had already been drawn up in March, 1935. In the case of the Royal Air Force, the new programme with further expansions announced on the 22nd May last was being carried out with the utmost energy and vigour; but in the case of the Navy and Army the steps actually taken had been directed only to making good the worst deficiencies. The development

of the situation in the Italo-Abyssinian dispute, however, rendered necessary the acceleration of some of the measures contemplated, and involved expenditure which has been provided for in the Supplementary Estimates presented on the 17th February. The fresh examination of the position which was made during the summer and autumn led to the conclusion that it was necessary to make further changes in the Royal Air Force; to speed up the measures contemplated for the modernization of the Navy and Army; to provide as rapidly as possible the necessary reserves of stores, ammunition, and equipment; and to organize the industrial resources of the country in such a way as to allow of immediate expansion of productive capacity in case of emergency.

The situation is constantly changing, and it may, therefore, be necessary to modify the particular measures to be taken from time to time in one direction or the other, and the scheme has been framed with this possibility in view.

The Navy.

The overwhelming importance of the Navy in preserving our sea communications and thus ensuring to this country the supplies of seaborne food and raw materials on which its existence depends was fully set out in the White Paper of March, 1935. No less important is the responsibility of the Navy for maintaining free passage between the different parts of the Empire of troops and supplies of all kinds, thus assuring the very foundation of our system of Imperial Defence.

To render the Navy capable in all circumstances of fulfilling these requirements, it will be necessary not only to proceed with new construction at a more rapid rate than in recent years, but also to make good existing deficiencies in ammunition and stores of all kinds. Until the end of 1936 the strengths of all the principal naval Powers are regulated by treaty. It would seem likely that agreement will not extend beyond advance notification of annual programmes, exchange of information, and certain measures of qualitative limitation on the sizes of ships and their guns.

Details of the new building programme will be found in Navy Notes, p. 430.

The Army.

The Army has three main functions to perform; it has to maintain garrisons overseas in various parts of the Empire; to provide the military share in Home Defence, including anti-aircraft defence, coast defence and internal security; and lastly, in time of emergency or war to provide a properly equipped force ready to proceed overseas wherever it may be wanted. The present peace-time serving strength of the regular military field units in Great Britain is approximately 115,000 men.

It must be remembered that this force constitutes the only source from which immediate reinforcements to any part of the Empire can be drawn. Compared with 1914, our Army has been reduced by no less than twenty-one battalions of infantry, although our peace commitments are greater than ever before. Owing to this reduction of infantry we are unable to maintain the balance of home and foreign service battalions, and the result is hardship to the units which are given additional foreign service, and injury both to recruiting and to the efficiency of our Army. It is proposed to raise four new battalions of infantry, which will to some extent mitigate the present difficulties of the policing duties which our Imperial responsibilities place upon us.

It is not intended, in connection with the present proposals, to make any further increase in the number of fighting units in the Regular Army beyond these four battalions. But it is urgently necessary that the Army formations already existing should be organized in the most effective form and equipped with the most modern armament and material, together with adequate reserves of ammunition and stores. Plans have been worked out for this purpose and the necessary steps are being taken to put them into operation. Particular attention is being given to our Field Artillery equipments, which will be thoroughly modernized.

The Territorial Army, though generally regarded as the second line in our military forces, actually provides the first line in anti-aircraft and coast defence at home. It is recruited on the basis that it will be ready to serve wherever it may be needed, and if the Regular Army should require support abroad, the Territorial Army will be called upon to give that support, serving not as drafts but in its own units and formations. It therefore holds an important place in our defence organization, and it is the intention of His Majesty's Government to do all that is possible to encourage its recruiting and increase its efficiency. For the present, owing to the demands upon the capacity of industrial output which must necessarily be made in the first instance by the Regular Army, it is not possible simultaneously to recondition the Territorial Army, but a beginning will be made at once in the task of improving its present inadequate equipment and training.

The modernization of coast defences at defended ports at home and abroad will be proceeded with at an accelerated rate, and the reorganization of anti-aircraft defences in the South-East of England which has already been authorized will be extended with a view to covering the important industrial districts in the centre and North of the country.

It is essential to take immediate steps to improve the housing conditions of the Army, which are at present unsatisfactory, and progress in this matter will be made as rapidly as possible during the next few years.

The Air Force.

The prime function of the Royal Air Force is to provide an effective deterrent to any attack upon the vital interests of this country whether situated at home or overseas. In the present situation this is the most urgent and important of our defence requirements.

The programme of the Royal Air Force approved for last year was designed to bring the strength of the Force at home up to a total of 123 squadrons with approximately 1,500 first-line aircraft. But new developments in design will render it possible to make great additions to striking power. The latest types, which will shortly come into production, show such improvements in speed, range, and carrying capacity as greatly to increase the operational effectiveness of the squadrons to be equipped with them. Accordingly, the programme already approved will be varied by effecting certain changes in composition and at the same time some addition will be made to the numbers of aircraft.

Including four new auxiliary squadrons to be formed for co-operation with the Territorial Army, the new programme will increase the first-line strength of the Royal Air Force in this country, bringing up the total to approximately 1,750 aircraft, exclusive of the Fleet Air Arm. First-line figures taken by themselves are, however, a misleading criterion of comparative air strengths, as has been explained on many occasions, and in the present case the augmentation of offensive and

defensive power which will result from the revised plans is greatly in excess of the numerical increase just mentioned.

Modern methods of defence and the correlation of offensive and defensive weapons are continually under review, and the scheme has been so drawn up as to ensure the necessary degree of flexibility and the full utilization of the results obtained from continuous scientific research and experiment.

The Royal Air Force also has responsibilities in the general scheme of Imperial defence. With our wide Imperial responsibilities, the ability to reinforce a threatened area in sufficient time and in sufficient strength demands the location of air units at convenient places on the strategic air routes. The Government propose an increase amounting to approximately twelve squadrons for this purpose.

Mention has already been made of the four new auxiliary squadrons which will form a nucleus for co-operation with the Territorial Army. The five regular squadrons at present allotted for co-operation with the Regular Army will be reorganized to provide seven squadrons, each of twelve aircraft.

Large numbers of young men will be needed as pilots in the Regular Air Force, the Auxiliary Squadrons, and the Reserve. Many airmen will be required for enlistment to meet the varied requirements of the Service; and many boys will be needed for apprenticeship in the skilled trades. The available sources of supply will all have to be brought into action, and the full co-operation of the public will be needed for success.

It is, of course, self-evident that the provision of air forces will not avail in war unless they are given the means not only to fight but to continue fighting. Skilled pilots require time to train, and aircraft production is a lengthy and complicated undertaking. The provision of adequate reserves in both men and material is an essential and urgent need, for without them the war effort of an Air Force could not be sustained. Particular attention has therefore been given to the provision of these reserves in the shortest possible time, and it can now be said that adequate arrangements for this purpose are in train.

Air Defence Methods.

The passive side of air defence measures has not been neglected. The Air Raid Precautions Department of the Home Office, set up in May of last year, has been actively engaged in the examination of the subject with Local Authorities and satisfactory progress has been made. Plans which have been prepared over a number of years are now approaching the stage when they can be put into operation, and estimates will be submitted in due course for the expenditure which will be required during the current year.

CO-ORDINATION OF THE SERVICES.

The White Paper emphasizes that the foregoing proposals have been the outcome of a thorough study of defence as a whole. The problem was first entrusted to a Sub-Committee of the Committee of Imperial Defence composed of the Secretary of the latter body, the Permanent Secretary to the Treasury, the Permanent Under-Secretary of State for Foreign Affairs, and the three Chiefs of Staff. Their conclusions were submitted to a special Ministerial Sub-Committee, known as the Defence Policy and Requirements Committee, set up in July last and presided over by the Prime Minister; Lord Weir was invited to advise on industrial aspects. This Committee served both as a General Purposes Committee of the C.I.D. and a

Committee of Liaison between the C.I.D. and the Cabinet. Every detail of the defence plans now brought forward was subsequently subjected to close examination and scrutiny by the whole Cabinet. They will, no doubt, require adjustment in the future, as well as continuous supervision and pressure to ensure their execution. For this purpose the existing organization for defence has been reviewed, and the following is a summary of the decisions arrived at by H.M. Government:

(1) The Prime Minister cannot divest himself of his final responsibility for directing the co-ordination of defence, nor can there be any weakening of the responsibility of the individual Service Ministers; but it has become necessary for the former—for the time being at any rate—to have some special assistance in defence matters.

(2) While the Prime Minister will retain the Chairmanship of the Committee of Imperial Defence and of the Defence Policy and Requirements Committee, there will be a Minister specially appointed as Deputy Chairman of these Committees, to whom the Prime Minister will delegate the following duties:

(i) The general day-to-day supervision and control on the Prime Minister's behalf of the whole organization and activity of the Committee of Imperial Defence; the co-ordination of executive action and of monthly progress reports to the Cabinet, or any Committee appointed by them, on the execution of the re-conditioning plans; discernment of any points which either have not been taken up or are being pursued too slowly, and (in consultation with the Prime Minister or other Ministers or Committees as required) of appropriate measures for their rectification.

(ii) In the Prime Minister's absence, taking the Chair at the Committee of Imperial Defence and the Defence Policy and Requirements Committee.

(iii) Personal consultation with the Chiefs of Staff together, including the right to convene under his chairmanship the Chiefs of Staff Committee whenever he or they think desirable.

(iv) The Chairmanship of the Principal Supply Officers Committee.

It will also be the duty of the Deputy Chairman to make such recommendations as he thinks necessary for improving the organization of the Committee of Imperial Defence.

(3) The position of the Chiefs of Staff Committee will be as follows—the individuals composing it have a double function: each advises his own political chief, and, acting together, the Committee preserves unimpaired the right to submit confidential reports of their collective military view to the Chairman or Deputy Chairman of the Committee of Imperial Defence. It is not proposed that meetings of the Chiefs of Staff Committee should normally take place under the Presidency of the Deputy Chairman. He will supplement the present activities and initiative of the Chiefs of Staff Committee by guidance and initiative of his own, his function being to ensure that every aspect is fully considered and that difficulties and differences are frankly faced.

(4) For purposes of co-ordinated planning, the existing Joint Planning Committee, which consists of the Directors of Plans in the three Service Departments, will be supplemented by three officers drawn respectively from the Navy, Army, and Air Force, who will be graduates of the Imperial Defence College. These officers will hold official positions on the staffs of their respective Departments. Their work in their own Departments will be chiefly that of obtaining the necessary

material for the preparation of Joint Plans; but their main work will be on collective plans prepared by the Joint Planning Committee for submission to the Chiefs of Staff Committee.

(5) The Secretariat of the Committee of Imperial Defence is being strengthened.

CO-OPERATION WITH INDUSTRY.

In the Great War, special powers were entrusted to the Government enabling them to direct industry into any desired channel. To-day we are living in a period of great commercial and industrial activity. What we have to do is to carry through, in a limited period of time, measures which will make exceptionally heavy demands upon certain branches of industry and upon certain classes of skilled labour, without impeding the course of normal trade. This will require the most careful organization and the willing co-operation both of the leaders of industry and of Trade Unions.

There are, in fact, two different requirements to be met: one concerns the carrying out of a peace-time programme; the other concerns our readiness for war itself. Modern war conditions involve a vast expenditure of munitions and equipment, and in the early months of the Great War there was a tragic loss of life in consequence of the lack of adequate reserves. If we are to avoid a repetition of that tragedy in any future war and to provide by our preparations an increased deterrent, we must prepare ourselves either by accumulating immense reserves or by so organizing industry that it can rapidly change over at the vital points from commercial to war production should the necessity arise. The first alternative, however, is only feasible within limits, and beyond that is ruled out not only on account of its cost, but because weapons and methods of warfare are continually changing, and these accumulated reserves might therefore well become obsolete before they were required. His Majesty's Government, therefore, have turned to the second alternative, and they have already taken some preliminary steps towards putting it into operation.

The present sources of supply are the Government factories and the normal Government contractors, who, in peace, manufacture various types of armament. The Government factories are chiefly responsible for a specialized kind of output which is generally non-existent elsewhere. This includes the production of explosives and propellants, the filling of shells and cartridges and the manufacture of fuzes, bombs, mines, and torpedoes. To meet present requirements in these categories it will be necessary to extend or duplicate existing Government factories, and both vulnerability of site and the needs of the Special Areas will receive consideration.

The normal Government contractors supply warships, aircraft, artillery, machine guns, tanks, lorries and miscellaneous stores of every description. They also supply a great variety of articles for export and home consumption and for both purposes they subcontract for materials, fittings and stores. To some extent it will be possible for them to contribute to the increased output required by extending their plant or workshops. But in the course of investigation it soon became apparent that, even for the purpose of the peace-time programme, the field would have to be extended to other firms not normally engaged in armament work, and at the same time it was clear that this extension would to some extent assist in the establishment of the organization necessary to ensure rapid expansion of production in time of war.

In the case of the Royal Air Force, steps are already being taken to extend the

field of production by placing orders with firms who do not ordinarily manufacture for the Force or for civil aviation. This process of extension will have to be further enlarged to meet the programmes for the Navy and Army, but even so something more will be required.

In order satisfactorily to provide for our needs both in peace and war, it has been decided to create a reserve source of supply which would be available in case of emergency. The method of procedure contemplated is to select a number of firms who do not normally make warlike stores but who are suitable for the purpose by reason of their experience and their possession of a skilled staff of engineers and workmen. Arrangements would then be made with these firms for the laying down of the necessary plant and machinery for a given output of selected articles and sufficient orders in peace time would be guaranteed to allow of the requisite training in the work of production. The particular circumstances will vary in connection with every firm and with different types of product. Wide elasticity of arrangements must therefore be provided for, but the underlying principle is that each selected firm, while maintaining and developing its normal civil trade, will agree to use its organization and commercial structure to set up some measure of munition production and thus create the reserve source of supply.

There will necessarily be a largely increased demand for skilled labour. In some occupations there is already noticeable the shortage inevitable when large and sudden demands are made upon such labour after a period of depression. It will be for the industries concerned, with such guidance as the Government can give, to make sure that vital processes are not held up for want of the necessary craftsmen.

The White Paper also deals with the financial aspects of the proposals.

CO-ORDINATION OF SUPPLY.

Co-ordination of Service requirements will be effected through the existing Principal Supply Officers Committee Organization of the Committee of Imperial Defence, and the new Deputy Chairman of the Committee of Imperial Defence will as Chairman of this Committee be able to supervise the whole system of supply and correct any deficiencies that may be found to arise.

Treasury control will be maintained throughout the whole field. It will be important, however, to see that the work is not delayed by the over-elaboration of financial safeguards, and new methods of procedure are being worked out which will ensure the effectiveness of financial control without impairing the continuity of progress.

From what has already been said as to the necessary flexibility of this programme, and in view of the uncertainty which must exist as to the rate of progress possible over so large a field, it will be realized that any attempt to estimate the total cost of the measures described would be premature at this stage. The estimates for the coming year will require to be supplemented by provision for further defence measures referred to in this Paper; those for the following years must necessarily be larger.

In the absence of any scheme of general disarmament it must be anticipated that the annual cost of maintenance for the reorganized Services must remain on a higher level.

NAVY NOTES

GREAT BRITAIN

HIS MAJESTY THE KING

His Majesty's appointments in the Royal Navy were: Midshipman, 22nd June, 1911; Lieutenant, 17th March, 1913; Captain, 8th July, 1919; Vice-Admiral, 1st September, 1930; Admiral, 1st January, 1935; Admiral of the Fleet, 21st January, 1936.

The King's first ceremony in connection with the Royal Navy since his accession to the throne occurred when, on 18th February, 1936, he conferred decorations and medals on the officers and men of the gun crews from Royal Naval Barracks, Chatham and H.M.S. "Excellent" who had drawn the gun carriages in London and at Windsor respectively at the funeral of his late Majesty, King George V.

Captain A. L. St. G. Lyster, D.S.O., and Captain A. J. Power, R.N., who were in command, were invested as Commanders of the Royal Victorian Order.

H.R.H. The Duke of York.

In pursuance of His Majesty's pleasure, Vice-Admiral H.R.H. The Duke of York, K.G., K.T., G.C.M.G., G.C.V.O., was promoted to the rank of Admiral in His Majesty's Fleet from 21st January, 1936.

Naval Estimates.

The Navy Estimates were presented to Parliament on March, 1936. They take no account of the increased expenditure on armaments foreshadowed in the White Paper on Defence.[1] Thus, no new construction is included in them, nor do they make any provision for expenditure on "making good defence deficiencies."

The nett total is £69,930,000—an increase of £9,880,000 on the Estimates for 1935. This increase excludes the Supplementary Estimate in 1935 of £4,850,000 which was entailed largely by the precautionary measures taken in the Mediterranean due to the Italo-Ethiopian War, and the construction of an additional seven destroyers, contracts for which were placed during that year.

In his Explanatory Statement accompanying the Estimates, the First Lord stated that over £4,500,000 of the increase was required for construction already authorized; partly due to the fact that the 1934 and 1935 programmes were heavier than those of previous years and partly owing to the speeding up of building, and earlier commencement.

There is an increase of over £1,000,000 in expenditure on the Fleet Air Arm, mainly for re-equipment and maintenance of existing Flights. The cost of aircraft for new ships is not included as this comes under the heading of new construction.

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[1] See p. 420 of this Journal.

SUPPLEMENTARY ESTIMATE.—A Supplementary Estimate was issued on 28th April. This amounted to £10,300,000, and includes nearly £3,000,000 for commencing new construction in 1936, as compared with a nominal sum of about £100,000 for this purpose in previous years. (See MATERIAL.)

It also provides for replenishing stocks of ammunition, fuel, and stores; additional A/A guns for existing ships; the rearming of three of the "Hawkins" class with 6-in. guns; the equipment of the "Argus" as a "Queen Bee" tender; and additional works at Singapore.

A new Boys Training Establishment is to be created at Rosyth. A large dry dock at Plymouth and another at Gibraltar are to be altered to accommodate the largest ships of the Fleet.

A personnel of 101,154 is allowed for, as compared with 99,905 in the original estimates. This is an increase of 6,872 on 1935.

LORD BEATTY.

Admiral of the Fleet the Earl Beatty, G.C.B., O.M., G.C.V.O., D.S.O., died at his London residence on the morning of 11th March, 1936, aged 65 years. He was buried in St. Paul's Cathedral, close to Lord Jellicoe, on Monday, 16th March.

H.M. the King was represented at the funeral service by Admiral H.R.H. the Duke of York. Commander H.R.H. the Duke of Kent was also present.

The Pall Bearers were :—Admirals of the Fleet Sir H. Oliver, Sir O. de B. Brock, Sir R. Keyes, Sir R. Tyrwhitt, Sir E. Chatfield; Admirals Sir W. Goodenough and Sir W. Cowan; Field Marshal Lord Cavan; and Marshal of the Royal Air Force Lord Trenchard.

FLAG PROMOTIONS AND RETIREMENTS.

Vice-Admiral F. G. G. Chilton, C.B., was placed on the Retired List on 17th February, 1936.

This resulted in the promotion, on the same date of, Rear-Admiral C. P. Talbot, C.B., D.S.O., to Vice-Admiral; and Captain W. N. Custance, A.D.C., to Rear-Admiral.

FLAG APPOINTMENTS.

MEDITERRANEAN STATION.—Admiral Sir Dudley Pound, K.C.B., who, in consequence of Sir William Fisher's extension of command, had been acting as the latter's Chief of the Staff for some months, assumed command of the Mediterranean Fleet on 20th March, and hoisted his flag in H.M.S. "Barham." Admiral Sir William Fisher, G.C.B., G.C.V.O., returned to England in his flagship, "Queen Elizabeth."

Rear-Admiral G. F. B. Edward-Collins took up his appointment as Chief of the Staff, to the Commander-in-Chief on the same date.

Rear-Admiral J. F. Somerville, C.B., D.S.O., became Rear-Admiral Commanding the Mediterranean Destroyer Flotillas on 21st March, 1936, hoisting his flag in H.M.S. "Galatea."

Rear-Admiral R. Leatham relieved Rear-Admiral H. J. S. Brownrigg, C.B., D.S.O., in command of the Mediterranean Base Defences on 12th January, 1936.

PORTSMOUTH.—Admiral Sir William W. Fisher, G.C.B., G.C.V.O., has been appointed Commander-in-Chief, Portsmouth, to date 13th July, 1936, in succession to Admiral Sir John D. Kelly, G.C.B., G.C.V.O.

FIRST AND PRINCIPAL NAVAL AIDE-DE-CAMP TO THE KING.—H.M. the King has appointed Admiral the Earl of Cork and Orrery, G.C.V.O., K.C.B., to be his First and Principal Aide-de-Camp in succession to Admiral Sir John D. Kelly, to date 13th July, 1936.

ADMIRAL COMMANDING AIRCRAFT.—The amended date of the appointment of Rear-Admiral N. F. Lawrence, C.B., D.S.O., was 16th February, 1936.

ADMIRAL COMMANDING RESERVES.—Owing to his having been appointed to the command of the Mediterranean Base Defences, Rear-Admiral H. J. S. Brownrigg, C.B., D.S.O., did not assume duties as Admiral Commanding Reserves until 14th February, 1936.

HOME FLEET DESTROYER FLOTILLAS.—Captain H. D. Pridham-Wippell, C.V.O., relieved Rear-Admiral E. C. O. Thomson, D.S.O., in command of the Home Fleet Destroyer Flotillas on 21st March, 1936, with the rank of Commodore, 2nd class.

PERSONNEL.

COMMAND FROM THE LOWER DECK.—It was stated in Parliament recently that since 1920, 99 officers promoted from the lower deck had received appointments to command H.M. Ships.

PAYMASTER DIRECTOR-GENERAL.—Paymaster Captain A. F. Strickland, O.B.E. has been appointed Paymaster Director-General to date 10th July, 1936, in succession to Paymaster Rear-Admiral Sir Henry W. Woodward, K.C.B.

THE GOODENOUGH MEMORIAL PRIZE.—Sub-Lieutenant D. C. Cunningham, R.N., H.M.S. "Boadicea," was awarded the Goodenough Medal for 1935. This is conferred on the Sub-Lieutenant who, when qualifying for the rank of Lieutenant, passes the best examination of his year in Gunnery, provided he has also taken a first-class certificate in Seamanship.

THE RYDER MEMORIAL PRIZE.—Sub-Lieutenant R. Scott, R.N., H.M.S. "Montrose," was awarded the Ryder Prize for 1935 for obtaining the highest marks in the examination in French in the Acting-Sub-Lieutenants' courses held at the R.N. College, Greenwich. The prize consists of a book or books.

UNIFORM REGULATIONS.—A slight change has been made in the Officers' uniform cap. In future it is to be round instead of slightly oval; and the peak, hitherto $1\frac{1}{2}$ inches deep at the centre is in future to be 2 inches.

When gloves are worn on ceremonial occasions both gloves are to be worn on the hands.

PAYMASTER CADETS AND MIDSHIPMEN.—The buttonhole of white twist and "patch" respectively, and dirks are to be worn in future by Paymaster Cadets and Midshipmen. Hitherto the former have not worn a dirk or a sword, while the latter have worn a frock coat and sword.

RECRUITING.—There has been no lack of applicants to join the Royal Navy. During the first half of 1935, 25,459 applications were received, of which only 3,726 were required.

MATERIAL.

1936 PROGRAMME.—The Supplementary Estimate, 1936, to which allusion has been made above, provides for part construction of the following ships:—

2 capital ships.

5 cruisers (2 to be of the "Southampton" class of approximately 9,000 tons and mounting twelve 6-in. guns; and 3 of about 5,000 tons for work with the main fleet).

9 destroyers of the " Tribal " class (N.B.—7 ships of this class were included in the 1935 Supplementary Estimate).
1 aircraft carrier.
4 submarines (1 minelayer, 1 patrol and 2 smaller types).
6 sloops (3 minesweepers, 2 convoy escorts and 1 coastal type).
1 river gunboat.
2 surveying vessels.
2 special service vessels.
6 motor torpedo boats (formerly coastal motor boats).
Various small craft.

1935 PROGRAMME.—The keel of the new cruiser " Liverpool " was laid on 17th February; the order for a sister ship—H.M.S. " Manchester," has been placed; but so far no information is available as to H.M.S. " Gloucester." All these ships are of the " Southampton " class.

The names of the seven additional destroyers provided for in the Supplementary Estimate, 1935, are :—" Afridi," " Cossack," " Ghurka," " Maori," " Mohawk," " Nubian," " Zulu." Contracts for the construction of all these ships have been placed. They are all to be built in private yards.

Of the submarines in this programme, work has been commenced on the " Sterlet " at Chatham, and contracts have been entered into for the " Cachalot " and " Triton."

The sloops " Kittiwake " and " Sheldrake " of this programme have been ordered and are due for completion in 1937.

H.M.S. " Maidstone "—a new Depot Ship for Submarines—will be laid down shortly.

Two trawlers, which were provided for in the 1935 estimate, have been cancelled. Requirements arose for twenty trawlers at short notice and they were purchased from private owners and converted for naval use.

The six coastal motor boats ordered under the Supplementary Estimate, 1935, are now referred to as motor torpedo boats.

1934 PROGRAMME.—The four cruisers—" Sheffield," " Glasgow " and " Birmingham " of the " Southampton " class, and the " Aurora "—a smaller ship of the " Arethusa " class, are due to be launched during the next few months.

The aircraft carrier " Ark Royal " is due for completion about the middle of 1938.

All the destroyers and the leader " Hardy " of this programme are due to be completed during 1936.

The submarines " Rorqual," " Spearfish," and " Sunfish " should be ready for service by the end of the year or very early in 1937.

The sloops " Aberdeen " and " Fleetwood " should be ready for service during the autumn.

According to present arrangements the " Aberdeen " is to take the place of the " Bryony " in the Mediterranean.

1933 PROGRAMME.—The cruisers " Southampton " and " Newcastle " have both been launched and will be the first two ships of their class to be commissioned.

The " Penelope," of the same programme, but of the smaller—" Arethusa "—class, should be put into commission in September of this year.

All the destroyers of the " G " class are now in commission, and are relieving ships of the emergency 20th Flotilla of older vessels, which were taken up from reserve and completed with full crews when the international situation required increased naval strength in the Mediterranean.

The sloops " Londonderry " and " Deptford " (" Grimsby " class) and the mine-sweeping sloop " Speedwell " (" Halcyon " class) were completed during the financial year 1935.

The submarines " Narwhal " and " Seawolf " are now in commission, but the " Grampus " will apparently not be completed until the late autumn.

In connection with the dates of completion of these ships, it must be remembered that few, if any, of them were laid down for many months after their construction had been authorized. Of the programmes prior to 1933, the only ship remaining for completion is the cruiser " Amphion," whose commissioning has been delayed owing to machinery defects. It is now announced that she should be ready for service in July, 1936. The " Amphion " is to replace the " Carlisle " as flagship on the Africa Station.

In view of the enlarged programme of new construction to be put in hand during the financial year 1936 and forthcoming proposals, it is probable that the construction of all ships now in hand will be accelerated and therefore the dates of completion may well be considerably ahead of those announced.

Reconstruction and Large Repairs.

Anti-Aircraft Cruisers.—The two small cruisers " Coventry " and " Curlew," built during the War, have been re-armed with a powerful battery of anti-aircraft guns. Photographs which have appeared in the Press show that they have surrendered some of their original armament and that they have been provided with a new control platform. It is possible that they may be the forerunners of a new type of fleet auxiliary.

Reconstruction of Capital Ships.—The policy of modernizing capital ships is being proceeded with. During the present financial year, seven of the fifteen capital ships of the Navy will be in hand for large repairs. H.M. ships " Repulse," " Royal Oak," " Malaya," and " Warspite " are at present undergoing reconstruction. By the time these Notes appear the battle cruiser " Repulse " should be ready for sea and, according to present arrangements, she will proceed to the Mediterranean to take the place of her sister ship, the " Renown," when the latter will return to England for large repairs. The " Royal Oak " should be completed in August, and the " Malaya " in December. The " Warspite " will not be ready until near the end of the financial year. The " Revenge " and the " Nelson " will then be taken in hand.

The aircraft-carrier " Glorious," after large repairs completed last year, has replaced the " Courageous " as flagship of the Rear-Admiral Commanding Aircraft.

The cruisers " Cumberland " and " Suffolk " are in hand. The " Cornwall " and " Kent " will also undergo large repairs.

Miscellaneous.

Use of White and Blue Ensigns on Shore.—The Admiralty recently re-issued a Memorandum, originally published on 9th September, 1921, on the subject of flying White and Blue ensigns on shore.

The Memorandum states that the White and Blue Ensigns of H.M. Fleet are purely maritime flags, and in general their use on shore is incorrect. There has, however, been a customary extension of the use of the White Ensign from the harbour ship used as a fleet establishment to barracks and other buildings on shore serving the same purpose. There has been a parallel extension of the use of special ensigns from Yachts, customs vessels and the like, to their headquarters on the coast—the Club House or Customs Office.

It is common for the White and Blue Ensigns to be used on cenotaphs and other memorials to naval personnel.

With these exceptions, the use of these ensigns on shore is improper. Special ensigns worn by yachts are worn under the authority of an Admiralty warrant issued to the yacht, not to the yacht owner: they are the national colours of the yacht, not the personal flag of the owner, and the owner has no shadow of right to fly the yacht's flag elsewhere than on board the yacht. Similarly, the White Ensign is nothing else but the national colours of a ship of war in commission, and no past service in the Navy or other connection with the Navy can make it correct to hoist it on private buildings on shore. It is equally incorrect for either ensign to be carried in processions or marches on shore.

Toasts in Naval Messes and at Official Dinners.—Admiralty Fleet Order 723/1936, dated 26th March, 1936, gives directions regarding the Loyal Toast.

The health of His Majesty the King should be honoured seated in all naval messes, whether on board ship or on shore, on all occasions except:

(*a*) When the National Anthem is played: the toast should then be drunk, standing.

(*b*) When toasts to foreign heads of State are included: they and that of "The King" should be drunk, standing, whether national anthems are played or not.

The Fleet Order also contains details of procedure when foreign officers are present.

ROYAL MARINES

H.M. The King.—The Admiralty announced in Fleet Orders on 2nd April, that His Majesty the King had been pleased to assume the Colonelcy-in-Chief of the Royal Marines.

His late Majesty King George V., as Duke of York, became the first Colonel-in-Chief in 1901.

Royal Marine Police.—The Admiralty announce that, as from 1st October, 1935, the command of the Royal Marine Police Force is transferred from the Commandants of the three Royal Marine Divisions to the Chief Constable of the Force—Colonel W. S. Poe, D.S.O. (Ret.).

DOMINION NAVIES

AUSTRALIA

Rear-Admiral R. H. O. Lane-Poole, O.B.E., was due to assume command of H.M. Australian Fleet during April, in succession to Rear-Admiral W. T. R. Ford, C.B.

The Australian Naval Estimates for 1935–36 amounted to £1,886,746, and show an increase of £283,163 on those for the previous year. This is partly accounted for by an increase of 750 in personnel.

NEW ZEALAND

On her arrival on the station, H.M.S. " Achilles " will hoist the Broad Pennant of the Commodore commanding the New Zealand Division of the Royal Navy. This ship will replace the " Diomede," which has already returned to England.

The other cruiser of this Division, the " Dunedin," is to be relieved by the " Leander."

FOREIGN NAVIES

COLUMBIA

Captain B. O. Bell-Salter, R.N. (Retd.) who took command of the two destroyers bought from Portugal, now holds the rank of Rear-Admiral in the Columbian navy, and commands all the sea-going units.

The training ship " Cucuta " is commanded by another British Officer—Captain R. D. Binney, R.N. (Retd.).

FRANCE

NAVAL ESTIMATES.—The Estimates for 1936 amount to about 1,373 million francs. This is an apparent reduction of some 1,330 million francs on those for 1935; but actually a sum of some 2,000 million francs has been transferred to an Armament Fund. This is a new loan fund which will be utilized to meet the cost of new works and construction. The Estimate figure, which represents the cost of maintenance, shows a reduction on this account of about 110 million francs; this will be achieved through the cuts in pay decreed last July.

NEW CONSTRUCTION.—The 1936 quota of the Naval Construction Programme includes three destroyers of the " Le Hardi " class—1,378 tons, armed with four 5.1-in. guns; three 1,000-ton destroyers of a new type; and one 800-ton submarine.

A new type of anti-submarine craft is the *escourteur*. This is really a miniature destroyer, but more stoutly built and much faster than early designs of that class. They displace 700 tons, carry two 3.9-in. guns, and their Parsons or Rateau turbines develop about 22.000 h.p. and give them a speed of some 35 knots. They are reported to have good sea-keeping qualities, and have been provided with a strengthened stem for ramming. They are equipped with 15.7-in. torpedoes and an ample supply of depth charges.

The *Premiere Escadrille d'Escorteurs*, consisting of the " La Pomone," " La Melpomène," " L'Iphigenie," and " La Flore " was due to be formed this spring. They will form part of the command of the C.-in-C., Brest.

THE " DUNKERQUE'S " ARMAMENT.—According to a Press report, the gun-houses of the quadruple 13-in. turrets of the battleship " Dunkerque " are exceptionally roomy, and the roof and side plating is very thick. Special arrangements are provided for ventilation and for protection against fumes and gas.

Ships of this, and the later " France " class, will be provided with a very powerful anti-aircraft armament.

AIR COURSES FOR SENIOR NAVAL OFFICERS.—Frequent air courses are being arranged to enable senior naval officers to become fully conversant with the possibilities and limitations of aircraft. In addition to lectures and visits to aviation centres, the course included a week at a naval air base where these officers are given practical experience in air observation, photography, bombing, and torpedo dropping.

THE NAVAL AIR SERVICE.—The *Aeronautique de co-operation Navale*, which consists of sixteen squadrons, is to all intents and purposes a shore-based air service. It is manned, trained, and operated by the navy. In addition, there is the *Aeronautique Maritime Autonome*, manned entirely by Air Force personnel. Until lately, it was lent to the Navy for coast defence duties in the neighbourhood of Toulon and Bizerta; but on the 1st January it was turned over entirely to the Air Minister.

GERMANY

NAVAL STRENGTH.—The following is the position as regards the units, completed and building, of the German navy, excluding the four old battleships which will disappear as they are replaced:

Completed.

Three "Deutschlands," classified as armoured cruisers—10,000 tons; six 11-in. guns; 26 knots.

Six "Nurembergs," light cruisers—6,000 tons; nine 5.9-in. guns 32 knots.

Twelve torpedo-boats—800 tons.

Twenty submarines—250 tons.

Except for the submarines, the above do not exceed the navy permitted by the Versailles Treaty.

Building.

Two battleships, to be called the "Scharnhorst" and "Gneisenau"—26,000 tons; nine 11-in. guns; speed not known.

Two "heavy cruisers"—10,000 tons; eight 8-in. guns.

Sixteen destroyers—1,625 tons.

Two submarines—500 tons.

Two submarines—750 tons.

When this programme is completed, Germany will still have barely half the tonnage allowed to her by the Anglo-German Naval Agreement.

An aircraft carrier is also projected.

RECRUITING.—Volunteers for the technical branches have been called for lately in the Press. Service is for four to five years or longer; twelve years or longer for petty officers. Applicants must have served a three-year apprenticeship in their trades, be between 18 and 23 years of age, "German citizens, of German blood, worthy of serving their country, unpunished, and unmarried."

BREMERHAVEN.—It has been decided that Bremerhaven is, in future, to be a naval port, and a destroyer flotilla will be based there this year. The North German Lloyd Line is being transferred to Cuxhaven.

GREECE

ESTIMATES.—The Naval Estimates for 1935–36 amount to approximately £800,000, which is a decrease of rather over £5,000 on the previous year.

NEW CONSTRUCTION.—Tenders have been called for the construction of four destroyers of 950–1,500 tons, to carry four 4.7-in. guns, two triple tubes, two or three A.A. guns, and to have a speed of 36 knots.

ITALY

NEW CONSTRUCTION.—The following vessels are under construction for the Italian navy :—

Two battleships—35,000 tons ; nine (?) 15-in. guns ; 34 (?) knots.
Two cruisers—7,874 [1] tons ; ten 6-in. guns ; 35 or more knots.
Four destroyers—1,449 tons ; four 4.7-in. guns ; 38 knots.
Four torpedo boats—615 tons, three 3.9-in. guns ; 34 knots.
Three submarines—1,332 tons (two are minelayers).
Twelve submarines—915 tons (two are minelayers).
One sloop—1,988 tons ; four 4.7-in. guns ; 20 knots.
Four convoy sloops—855 tons.

Of the foregoing, four destroyers, twelve submarines, and one sloop were laid down in 1935.

In addition a large number of coastal motor boats (*Motoseafi Anti-Sommergibili*) are reported to be under construction.

MODERNIZATION OF BATTLESHIPS.—As reported in last quarter's Notes, the old battleships "Cavour" and "Cesare" are undergoing extensive reconstruction. They are being lengthened by some 30 feet, and re-engined with Baluzzo turbines ; is is expected that they will have a speed of at least 24 knots.

The centre turret is being replaced by catapults. The secondary armament is being brought up to date and otherwise improved.

MERCANTILE MARINE IN WAR.—Under a Royal Decree, part of the mercantile marine can, in time of war, be placed under the control of the Ministry of Marine for co-operation with the Navy as "Auxiliary Ships of the State." These will include vessels converted to minesweepers and minelayers, store ships, escort ships, and auxiliary cruisers. The personnel will become naval in all respects.

The remainder of the mercantile marine will be classified as "Ships of Commerce," and, in war, will come under the Ministry for Communications.

The Minister of Marine will give orders regarding the conduct of navigation and defence of the latter. He can provide merchant ships with such defensive armament as may be necessary.

The plans of all ships with metal hulls building for Italian subjects must be submitted to the Office of the Chief of the Naval General Staff. Instructions will be given for the work of reinforcement to enable guns to be mounted of such calibre as is permitted by international conventions. These reinforcements must be kept in perfect repair by the shipowners.

SCHOOL OF COMMAND SUSPENDED.—Details were given in these Notes for November 1934 of the system whereby officers of Lieutenants' rank were given early experience in command in an instructional destroyer flotilla. This "Sea-going School of Command" has been suspended—possibly through necessity to conserve fuel—and Lieutenants will be promoted after doing the course at the Royal Naval Academy without having gone to this school.

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[1] Although nominally only 7,874 tons, these ships will probably displace at least 9,000 tons. Their armament is being increased from eight 6-in. guns in the original design to ten guns of the same calibre.

UNITED STATES

NEW CONSTRUCTION.—According to the Journal of *The United States Institute Proceedings*, the following are the warships now building for the U.S. Navy :—

Two aircraft carriers—20,000 tons ; 5-in. A.A. guns.
Three heavy cruisers—10,000 tons ; nine 8-in. guns ; 32 knots.
Seven cruisers—10,000 tons ; fifteen 6-in. guns ; speed unknown.
Eight submarines—1,300 tons.
Six submarines—1,450 tons.
Thirteen destroyers—1,850 tons ; 5-in. guns.
Forty destroyers—1,500 tons ; 5-in. guns.
Two gunboats—2,000 tons.

In addition, a third aircraft carrier, to be named the " Wasp," and two more 10,000-ton, 6-in. gun cruisers, the " St. Louis " and " Helena," are due to be laid down this year.

MODERNIZATION.—A Bill has been submitted to Congress to make provision for extensive alterations to the " California " and " Tennessee "—two of the newest battleships, which have not been modernized ; also for further alterations of a major character to the " New York," " Texas," and " Oklahoma " ; and for modernizing the carriers " Lexington " and " Saratoga," and the repair ship " Prometheus."

A separate Bill provides for the correction of " compartmentation " and fire-control deficiencies in all battleships, except the " Arkansas." The object is to ensure this latter work being done even if the more extensive modernization is blocked.

Describing the proposed work in some detail, Admiral Taussig, Assistant Chief of Naval Operations, remarked :—

> The " California " and " Tennessee " are very much better sub-divided than previous ships ; their guns have the necessary elevation, and they have practically all the armour required ; but they require a complete new and modern fire-control system similar to that in the three 16-in. battleships.
>
> The " Oklahoma " and " Nevada " have had their guns elevated and have both been modernized ; but the " Oklahoma's " reciprocating engines and boilers should be replaced by new and more powerful machinery.
>
> The " New York " and " Texas " need their guns elevating, also the replacement of the anti-aircraft battery, and of the main engines and boilers.

As regards compartmentation, many ships require improvements to their defensive qualities to enable them to withstand the shock of torpedoes and bombs. Although the torpedo tubes have been taken out of the battleships, there are still the very large compartments running right across the ship which should be sub-divided.

The aircraft carriers " Saratoga " and " Lexington " require improvements to the flight and hangar decks, installation of anti-aircraft batteries, and new search-lights.

FLAG CHANGES.—A number of Flag changes take place, mostly in June of this year.

Vice-Admiral A. J. Hepburn, now commanding the Scouting Force, relieves Admiral Reeves as C.-in-C. U.S. Fleet. Rear-Admiral W. T. Tarrant succeeds Admiral Hepburn.

Vice-Admiral W. D. Leahy, now commanding Battleships, becomes Commander, Battle Force, and is succeeded by Rear-Admiral C. S. Kempff.

Rear-Admiral F. J. Horne, now commanding Aircraft, Base Force, becomes Commander, Aircraft, Battle Force, and is succeeded by Rear-Admiral E. J. King.

Rear-Admiral J. R. De Frees becomes Commander, Submarine Force.

ARMY NOTES

HIS MAJESTY THE KING

FUNERAL OF HIS LATE MAJESTY KING GEORGE V.

The following message was issued as a Special Army Order, dated 29th January, 1936 :—" I am commanded by the King to express to all concerned His Majesty's complete satisfaction with the military arrangements which were made, both in London and at Windsor, for to-day's ceremony. The King was much gratified at the bearing and steadiness under arms of all his troops."—DUFF-COOPER.

THE KING'S FIRST PARADE.—H.M. King Edward VIII was present, on Sunday, 1st March, 1936, at the St. David's Day Parade Service of the Welsh Guards, which was held at All Hallows Church, Barking-by-the-Tower. Wearing the uniform of Colonel-in-Chief of the Welsh Guards, he attended the Regiment's coming-of-age Service and Parade, and sat in the body of the church among his brother officers. After the service the King drove to the Tower to take the salute, where he took up his position opposite the King's steps on Tower Wharf. The band and the regiment then marched past, preceded by their Old Comrades. Before leaving the Tower the King handed to each officer of the Welsh Guards a leek emblem and went to the men's mess, where he was received with prolonged cheers. Colonel M. B. Beckwith-Smith, D.S.O., M.C., was in charge of the parade, and the Rev. H. W. Todd, M.C., conducted the service.

COLONEL-IN-CHIEF.—His Majesty has been graciously pleased to assume the Colonelcy-in-Chief of the following units, with effect from 18th February, 1936 : The Life Guards, Royal Horse Guards, 12th Royal Lancers, Royal Regiment of Artillery, Corps of Royal Engineers, Grenadier Guards, Coldstream Guards, Scots Guards, Irish Guards, Welsh Guards, The Royal Scots Fusiliers, The South Wales Borderers, The Duke of Cornwall's Light Infantry, The Prince of Wales's Volunteers, The Middlesex Regiment, The Seaforth Highlanders, The Royal Wiltshire Yeomanry.

CAPTAIN-GENERAL AND COLONEL.—Honourable Artillery Company.

HONORARY COLONEL.—5th Battalion The Devonshire Regiment, 4th/5th Battalion The Cheshire Regiment, 16th London Regiment, Oxford University Contingent, Senior Division, Officers Training Corps.

THE KING'S PROMOTIONS.—His Majesty's promotions in the Army were as follows :—2nd Lieutenant, Grenadier Guards, 8th August, 1914 ; Lieutenant, 18th November, 1914 ; Captain, 10th March, 1916 ; G.S.O. II, 29th September, 1916 ; Temporary Major, 25th February, 1918 ; Colonel, Welsh Guards, 3rd June, 1919 ; Lieutenant-General, 1st September, 1930 ; General, 1st January, 1935 ; Field-Marshal, 21st January, 1936.

AIDES-DE-CAMP GENERAL TO THE KING.—The following General Officers held the appointment of A.D.C.s-General on His Majesty's accession :—General Sir Kenneth Wigram, G.C.B., C.S.I., C.B.E., D.S.O., Indian Army ; General Sir Cyril J. Deverell, G.C.B., K.B.E., Colonel, The West Yorkshire Regiment ; General Honourable Sir J. Francis Gathorne-Hardy, G.C.B., G.C.V.O., C.M.G., D.S.O. ; General Sir Alexander E. Wardrop, K.C.B., C.M.G., Colonel-Commandant, Royal

Horse Artillery, Colonel, 2nd Battalion 9th Jat Regiment; General Sir John T. Burnett-Stuart, K.C.B., K.B.E., C.M.G., D.S.O., Colonel-Commandant, 1st Battalion The Rifle Brigade; General Sir Walter S. Leslie, K.C.B., K.B.E., C.M.G., D.S.O., Indian Army.

H.R.H The Duke of York.

H.M. the King has been graciously pleased to give orders for the following promotion :—Lieutenant-General H.R.H. the Duke of York, K.G., K.T., G.C.M.G., G.C.V.O., to be General; to date from 21st January, 1936.

Army Estimates.

The Army Estimates for 1936 are described in the Memorandum of the Secretary of State for War (Cmd. 5109, price 2d.), published by H.M. Stationery Office. The Estimates amount to £49,281,000, and show an increase of £5,731,000 over those of 1935. Of this sum, £1,555,000 is provided on account of the special measures taken in connection with the Italo-Abyssinian dispute. This provision represents, broadly, the amount required to cover expenditure on existing commitments for the purchase of stores, vehicles, etc., which will have to be met in 1936, whatever may be the duration of the situation which has rendered the special measures necessary.

It will be recalled that following the issue in March, 1935, of a "Statement relating to Defence," H.M. Government decided that the time had come when further expenditure on the primary requirements of the Army was necessary if steps were to be taken to restore it to a condition of adequate preparedness in personnel and material. This year's Estimates provide for a further instalment of the programme which was outlined in the Army Notes of the Journal for May, 1935, for bringing our military preparations up to date. They do not provide for the acceleration and expansion of the programme announced by H.M. Government in its new "Statement relating to Defence," published in March, 1936. These fresh proposals are dealt with separately in the Journal.[1] Progress has, however, been made in the execution of the earlier and more limited programme as regards the mechanization and modernization of the Army, the development of coast defences and of anti-aircraft defence, and the preparation of reserves.

Establishment and Distribution of the Regular Army.—The total of Vote A is 158,400 as compared with 152,000 in 1935. The normal distribution of the principal units of the Army remains generally as in 1935, except that one additional battalion of infantry will be in Malaya, and in consequence another battalion of Foot Guards is included in the normal infantry garrison of six battalions in Egypt.

The increases in personnel are due to the development of Air Defence, the modernization of Coast Defence Garrisons of certain defended ports abroad and the requirements of the Army on mobilization. There will, however, be a further decrease of 1,532 in the establishment of horses. In the Royal Artillery, the remaining two Light Brigades at home will be converted to mechanized Army Field Brigades, and it is hoped to mechanize the Field Artillery of one division. Two anti-aircraft brigades, R.A., will be formed for the completion of the 2nd Air Defence Brigade.

In the Royal Engineers, the first half of a second Anti-Aircraft Searchlight Group will be formed for the 2nd Air Defence Brigade, and the mechanization of

[1] See General Service Notes, p. 420.

the one remaining horsed field company at home and of the two n Egypt will be completed.

In the Royal Corps of Signals, Cavalry Divisional Signals will be reorganized to form a Cavalry Signals consisting of four independent troops to serve the Mobile Division and the Cavalry armoured car regiments. A second Air Defence Brigade Signals and two additional Artillery Signals sections will be formed.

The measures to reorganize the Cavalry and Infantry of the Regular Army have already been described in detail in the Army Notes in the JOURNAL for February, 1936.

The Corps of Military Police, which has not hitherto been maintained on a unit basis, has been reorganized into separate companies and sections to meet mobilization requirements.

STRENGTH AND RECRUITING.—The strength of the Regular Army, inclusive of British troops in India, will be approximately 10,000 below the recruiting establishment at the beginning of the financial year, and during the year the number of men leaving the Colours will be approximately 26,500; there is a need, therefore, of over 36,000 recruits. As during the past ten months only 19,594 recruits were taken as against 22,440 during the corresponding period last year, there is a serious shortage of men coming forward to join the Army, although the type of recruit being enlisted tends to improve.

ARMY AND SUPPLEMENTARY RESERVES.—The strength of the Army Reserve at the beginning of the financial year will be about 113,000 and should rise to about 121,200 by the end of the year. Recruiting for the Supplementary Reserve during the past year has shown an improvement and is satisfactory, especially in Category C; its strength may rise during the year from about 20,500 to 22,000.

VOCATIONAL TRAINING AND CIVIL EMPLOYMENT.—During the year ended 30th September, 1935, 3,065 soldiers completed training at the Army Vocational Training Centres, of whom 2,351 or 76.7 per cent. are known to have obtained employment; the corresponding figures for the previous year were 2,536 and 2,198. Lectures to units by qualified lecturers and visits to centres by officers and other ranks have resulted in a considerable increase in the number of applications for this form of training. The procedure under which all soldiers are compulsorily registered with the Employment Exchanges has now been in force for three years and continues to justify its adoption.

TERRITORIAL ARMY.—The strength of the Territorial Army (exclusive of Permanent Staff) on 1st January, 1936, was 7,264 officers and 121,057 other ranks, an increase of 234 officers, but a decrease of 2,401 other ranks in the twelve months. The number of recruits in the year ended September, 1935, was 25,134 against 24,821 in the previous year. The attendance at camp was again very satisfactory, 6,310 officers and 105,120 other ranks being present, or a percentage of attendance of all ranks of 84.7 per cent. To meet the need of more ground troops for anti-aircraft defence in the United Kingdom, eight infantry battalions were converted into anti-aircraft units and existing anti-aircraft formations were expanded. A corresponding conversion of units in the North and Midlands is contemplated in the autumn.

The Council of County Territorial Associations has nominated a small panel of its members to act with representatives from the various Commands as an Advisory Committee on Territorial matters, and the Army Council have been glad to receive advice and suggestions from them in the light of their special experience. The appointment of Regular officers as brigade majors of infantry brigades

has had a beneficial effect on training. In view of the success of the courses for subalterns introduced in 1934 at Woolwich and Sandhurst, it has been decided to arrange similar courses for captains of the Territorial Army at Sandhurst and elsewhere.

ARMAMENTS AND RESEARCH.—The provision and modernization of coast defence and anti-aircraft artillery equipments continues. As regards the latter, experiments with a more powerful gun are being conducted and the equipment of Territorial Army units for air defence is being pressed forward.

It is also intended to proceed with the conversion of the remaining light artillery brigades into mechanized Army field brigades, equipped with two 4.5-in. howitzer batteries and one 18-pdr. battery. Successful trials of an improved type of carriage and ammunition trailer with pneumatic-tyred commercial wheels and drawn by mechanized transport, in batteries of two brigades of the R.H.A. will enable the remaining two batteries of each of these brigades to be similarly equipped at an early date.

Satisfactory trials of designs of an anti-tank gun equipment will permit the issue of these weapons to begin this year.

The new light machine gun, known as the Bren, was adopted last year to replace the obsolete Lewis gun used by the infantry and to provide a suitable gun for the cavalry. Full details of this gun were given in the JOURNAL for February, 1936. Preparations for manufacture, which have been delayed by the scarcity of skilled labour, are now in hand at Enfield, and the first deliveries may be expected next year.

An anti-tank rifle, the "Boys," has been adopted as the first line of defence against armoured fighting vehicles, and it is hoped to manufacture and issue a number of these weapons before the end of the year.

Simpler types of light and medium dragons have been evolved. The former has come through its experimental trials satisfactorily and a number will be ordered this year; its cost is considerably less than the present type and it has the advantage of containing a large number of components which are in commercial use. The new medium type will be found easier and cheaper to maintain than the present model and will now be put into the service.

The latest type of light tank having proved a success, production will continue this year, and new types of other models and of armoured cars will shortly be available for experiment and trial.

A new type of machine-gun carrier has passed its experimental trials satisfactorily. The development of a small and inconspicuous 4-wheeled vehicle for first-line transport has now reached the stage when it can replace the horse for Army transport purposes.

A satisfactory wheeled vehicle with a good cross-country performance has also been produced for cavalry, and it is proposed to equip one regiment this year.

A light 6-wheeled tractor for field artillery, which promises to be an alternative to the light artillery dragon, has also been under trial during the last training season.

In all the vehicles referred to above, the maximum use has been made of commercial components. Research in the fields of ballistics, metallurgy, and radiology has made useful contributions to the solution of Army problems, and advances have been made in the application of wireless telegraphy and telephony to Army purposes.

Full details are given in "Army Estimates, 1936", published by H.M. Stationery Office, and obtainable through any bookseller, price 5s. This

publication is a mine of interesting information regarding organization and other matters, which is not readily obtainable elsewhere and is of special value to officers studying for promotion examinations or for the Staff College.

HOME

Appointments and Promotions.

Chief of the Imperial General Staff.—The appointment of General Sir Cyril J. Deverell, G.C.B., K.B.E., Aide-de-Camp-General to the King, as Chief of the Imperial General Staff, in succession to Field-Marshal Sir Archibald A. Montgomery-Massingberd, G.C.B., K.C.M.G., LL.D., took effect from 7th April, 1936.

Colonels-Commandant and Colonels.—H.M. the King has been pleased to approve the following appointments:—Major-General B. A. Hill, D.S.O., as Colonel Commandant, Royal Army Ordnance Corps; Colonel (honorary Major-General) Sir Sydney D'A. Crookshank, K.C.M.G., C.B., C.I.E., D.S.O., M.V.O., and Major-General W. H. Beach, C.B., C.M.G., D.S.O., as Colonels-Commandant, Royal Engineers; Colonel (honorary Brigadier-General) G. H. Harrison, D.S.O., as Colonel, The Border Regiment, and Major-General P. R. C. Cummings, C.B., C.M.G., D.S.O., as Colonel, The South Staffordshire Regiment; Major-General M. G. H. Barker, D.S.O., as Colonel of The York and Lancaster Regiment; Colonel (honorary Brigadier-General) D. J. E. Beale-Browne, D.S.O., as Colonel of the 9th Queen's Royal Lancers.

Honorary Physician to the King.—Colonel I. M. Macrae, C.I.E., O.B.E., M.B., Indian Medical Service, Honorary Surgeon to the Viceroy of India.

Promotions.—The War Office announces the following:—

Major-General R. G. Finlayson, C.B., C.M.G., D.S.O., (late R.A.), to be Lieutenant-General; to date 28th January, 1936.

Colonel A. E. Davidson, D.S.O., A.D.C., to be Major-General and to be Director of Mechanization, the War Office, from 29th June, 1936. Major-General Davidson served in the South African War and in the Great War, and joined the R.E. thirty-six years ago. He was promoted Major in 1916, Brevet Lieutenant-Colonel in 1918, Lieutenant-Colonel in 1925, and Colonel in 1927, with date from 1922. He has been chairman of the Technical Committee of the Mechanical Warfare Board, and last year was elected President of the Institute of Mechanical Engineers. It is a unique distinction for a serving officer to be elected president of a civilian body of such high standing.

Lieutenant-General Sir George Weir, K.C.B., C.M.G., D.S.O., G.O.C. the British troops in Egypt, has been advanced to the grading of General Officer Commanding-in-Chief, with effect from 28th March, 1936.

Sir George Weir joined the Imperial Yeomanry and served in the South African War, 1899–1901. He was promoted to Captain in the 3rd Dragoon Guards in 1902. During the Great War he served in France, Belgium, Macedonia, Serbia and Bulgaria, and was wounded. He was promoted Brevet Colonel in 1918; Major-General in 1927; Lieutenant-General in 1933, and was appointed Colonel, 3rd Dragoon Guards, in 1929. He has been commanding the British troops in Egypt since 1934.

Lieutenant-General Sir Arthur G. Wauchope, G.C.M.G., K.C.B., C.I.E., D.S.O., to be General; 13th April, 1936.

General Wauchope becomes General at 62 after service from 1896 in the Militia,

The Black Watch, and on the Staff. He commanded the old 73rd Foot, and was Chief of the British Section, Military Inter-Allied Commission of Control, Berlin, from 1924 to 1927. After commanding in Northern Ireland (1929–31) he went to Jerusalem as High Commissioner and Commander-in-Chief, Palestine, and High Commissioner, Transjordan.

Major-General J. G. Dill, C.B., C.M.G., D.S.O., to be Lieutenant-General; 13th April, 1936.

General Dill has been Director of Military Operations and Intelligence at the War Office since 1934. He was in The Leinster Regiment and is Colonel of The East Lancashire Regiment. He was a G.S.O.1 in France and in India, an instructor at the Imperial Defence College, and Commandant at Camberley.

Colonel G. J. Giffard, D.S.O., A.D.C., to be Major-General; 13th April, 1936.

General Giffard is a graduate of the Imperial Defence College, the Staff College, and the Naval Staff College. He has been G.S.O.1 with the 2nd Division at Aldershot since 1933, and regimentally belongs to The Queen's Royal Regiment, whose 2nd battalion he commanded. In 1934, he was one of the occupants of an observation balloon at the Royal Air Force Balloon Centre, Rollestone Camp, Salisbury Plain. The balloon broke loose from its moorings and drifted some 75 miles over six counties; in coming down it narrowly missed the tower of Hockliffe Church, Bedfordshire.

APPOINTMENTS.—Major-General C. C. Armitage, C.B., C.M.G., D.S.O., to be Commander, 1st Division, Aldershot Command, from 18th February, 1936.

Major-General Viscount Gort, V.C., C.B.E., D.S.O., M.V.O., M.C., to be Commandant, The Staff College, Camberley, from 18th February, 1936.

Major-General H. S. Gaskell, D.S.O., has taken over the duties of Engineer-in-Chief, Army Headquarters, India.

Lieutenant-General Sir Charles Bonham-Carter, K.C.B., C.M.G., D.S.O., has assumed the appointment of Governor and Commander-in-Chief, Malta.

Sir Charles Bonham-Carter served in the South African War and in the Great War and has forty years service. He commanded the 2nd Battalion The Royal Dublin Fusiliers; was promoted Major-General in 1926; Director of Staff Duties, the War Office, 1927–31; Commander, 4th Division, 1931–33; and Lieutenant-General in 1933, since when he has been Director-General, the Territorial Army.

Lieutenant-General Sir Walter M. St. G. Kirke, K.C.B., C.M.G., D.S.O., to be Director-General, the Territorial Army.

Sir Walter Kirke joined the R.A. in 1896 and served on the N.W. Frontier of India, Waziristan, 1901–02, and with the Burmah Military Police, 1902–09. He served in France during the Great War and was promoted Brevet Colonel in 1917; Major-General, 1924; Lieutenant-General, 1931. He has been G.O.C.-in-Chief, Western Command, since 1933.

Lieutenant-General O. C. Borrett, C.B., C.M.G., C.B.E., D.S.O., to be Lieutenant of the Tower of London.

ARMY REORGANIZATION.

With reference to the "Remarks and Comments" on Army Reorganization which appeared in Army Notes for February, 1936, p. 203, it is understood that there is no question of the cavalry light tank regiments becoming merged in the Royal Tank Corps. The importance of "organization by functions" is regarded as outweighing the advantages of "organization by arms," and the Mechanized

Mobile Division is, therefore, being organized on that principle. Full consideration has been given to questions of training and administration, and no special difficulties are anticipated in giving effect to this scheme so far as they are concerned.

The role of cavalry motor regiments is to carry out within the mechanized cavalry brigade the tasks, other than shock action, hitherto performed by the horsed cavalry regiments. The primary role of cavalry light tank regiments is to provide offensive power to maintain the mobility of the cavalry motor regiments. If mechanized cavalry brigades [1] did not possess light tanks frequent calls would, it is anticipated, have to be made on the Tank Brigade for armoured support and the efficiency of the Tank Brigade in its role of providing the main striking portion of the Mobile Division for decisive action would inevitably suffer.

General.

Employment Bureau for Retired Regular Officers.—Established just over 15 months ago, the scope and usefulness of this Bureau are best shown by results, and a review of these will be of interest now that there is a constant flow of officers leaving the Service under the "Stanhope" (British) and Indian War Block "axes." The total number of officers registered to date, 31st March, 1936, is: British Service, 862; Indian Army, 355.

Up to the end of 1935, the Bureau had been successful in placing in employment 53 British and 26 Indian Army officers, while in addition 106 officers were known to have got jobs on their own, in the latter case the Bureau being often asked for a reference as to the officers' Army career. For the first quarter of this year the numbers are:—by Bureau, 12 British and 6 Indian Army officers; other sources 36 officers. The proportion of those placed to those registered seems low, but the latter include a large number leaving the Service in the normal way. The majority are between 40 and 55 years of age, when suitable employment is difficult to find. The good proportion of officers who get jobs on their own should encourage many who fancy it is sufficient to register at the Bureau and then sit back waiting for something to turn up. The Bureau is also of assistance to officers in an advisory capacity, especially to those who are thinking of retiring before they really need. While the Bureau has been fortunate in securing the help and advice of leading men in various business and other institutions, it is anxious to widen the scope and bring the demand into better relation to the supply. Any employer requiring a man for his ability to handle men and look after their social and recreational welfare rather than for his technical knowledge should apply to the Secretary of the Bureau, Lion House, 72 Red Lion Street, Holborn, W.C.1. *Telephone:* Holborn 3283.

TERRITORIAL ARMY

Increased Concessions.—The Secretary of State for War has announced the following increases in annual allowances: the Proficiency Grant to be increased

[1] A mechanized cavalry brigade consists of two motor cavalry regiments and one cavalry light tank regiment. Motor cavalry regiments are armed with rifles and light automatics and are transported in light mechanical vehicles. Cavalry light tank regiments are equipped with light tanks of the same type as those used by the Royal Tank Corps.

The only horsed cavalry which are being retained are the two regiments of Household Cavalry and five regiments of cavalry of the line, to act as divisional cavalry or as cavalry brigades, and as reliefs for the five regiments of British cavalry maintained in India.—Editor.

to £3; the weapon training allowance to 10s.; and the allowance for extra drills to 30s., making a total of £5. The concession made last year to specialists and instructors will be continued, so that a Territorial soldier who was also an instructor and specialist will draw in all £6 10s., in addition to his pay and allowances, when in camp.

The arrangement made last year in respect of a certain number of drills will be extended, so that men will receive for all their fifty drills full expenses for travelling.

Married soldiers will receive the full marriage allowance from the age of twenty-one, instead of twenty-six as heretofore.

The messing allowance payable in respect of Territorial officers for the period of the annual camp will be increased from £1 to £5.

Sir Victor Warrender, Financial Secretary to the War Office, stated that the increased Proficiency Grant will be payable in 1936 to all those men attending camp and performing the regulated number of drills. The grant of 10s. for weapon training will be payable, as usual, in 1936. Owing to the fact that the current training year has advanced so far as to prevent a number of men from taking advantage of the concession, the grant of 30s. for extra drills will not come into operation until 1st November, 1936. The travelling allowance for thirty drills for trained men in place of the present total—which varies from twenty to forty according to the arm of the service—will, however, be payable during the current training year.

Territorial Army Rifle Association.—His Majesty the King has been pleased to become Patron of the Territorial Army Rifle Association. His late Majesty King George V was Patron of the Association.

Anti-Aircraft Formations.—The 46th (North Midland) Division (Commander, Major-General Sir Hereward Wake, Bart., C.B., C.M.G., D.S.O.), is to be converted into an air defence formation for the Industrial North. The 46th Division has a fine fighting reputation and claims to have captured more prisoners in one day on the Western Front than any other division.

The conversion of the 47th Division to an anti-aircraft formation for the air defence of London was announced in the Journal for February, 1936.

The 8th Battalion West Yorkshire Regiment (Leeds Rifles), belonging to the 49th (West Riding) Division, is also to be converted into an air defence brigade.

Improvement in Recruiting.—The latest returns show that during the month of March, 1936, 3,735 recruits were taken on the strength of the Territorial Army, compared with 2,473 in February last and 3,605 in March, 1935. With the exception of the years 1931 and 1933,[1] this is the largest intake of recruits in the month of March for the past ten years. The number of recruits obtained in each Command during March was as follows:—Eastern Command, 852; London District, 384; Northern Command, 662; Scottish Command, 667; Southern Command, 495; and Western Command, 675.

The total strength of the Territorial Army (other ranks) on the 1st April, 1936, was 122,434; this is an increase of 1,800 compared with the strength on 1st March, 1936, and is the largest increase in strength in any month since May, 1933.[1] This strength is, however, 1,040 less than on 1st April, 1935, there having been a decline in strength each month from August, 1935, to January, 1936, inclusive.

[1] Recruiting for the Territorial Army during the greater part of the year 1933 was very good following the slump in 1932, when annual camps were cancelled as a measure of economy necessitated by financial stringency.

The number of officers of the Territorial Army on 1st April, 1936, was 7,330; this is an increase of 55 during the month, and 268 more than on 1st April, 1935. The number of officers is, however, 1,926 short of establishment.

Officers Training Corps.

Statistics are now available for the Officers Training Corps for the year ending 30th September, 1935.

In the Senior Division 20 universities and university colleges contributed to the contingents, as in the past. The strength of officer cadets is 4,484, an increase of 70 on last year, while the number of efficient cadets is 4,007, an increase of 94 on last year's figures. 3,505 cadets attended camps during 1935 in the Isle of Man, at Weymouth, Shorncliffe, Salisbury Plain and elsewhere, compared with 3,449 in 1934.

In the Junior Division contingents were furnished by 170 schools, compared with 174 schools in 1934. However, since 1st October new contingents have been formed in 7 schools. There are over 100 schools on the waiting list. The strength at 30th September, 1935, was 580 officers and 24,291 cadets, of whom 16,401 were classed as efficient. It should be noted that no cadet under the age of 16 years can be classed as efficient. 11,782 cadets attended camp in 1935, and 1,412 cadets who otherwise would have gone to camp were debarred by infectious illness.

The numbers of Certificates " A " and " B " were most satisfactory during the year. In the Senior Division a record number of 969 Certificates " A " and 778 Certificates " B " were gained, while in the Junior Division 4,702 Certificates " A " were gained, an increase of 794 on last year. These figures do not include 337 Certificates " A " and 108 Certificates " B " gained by the Canadian O.T.C.

In the Junior Division the number of cadets for whom camp arrangements were made was restricted to a maximum of approximately 2,500 cadets in each of the larger camps. This had the satisfactory effect of eliminating the smaller boys and thus removing one of the difficulties in providing interesting training for the older cadets in the contingents. It is proposed to adopt a similar system in this year's camps.

INDIA

India General Service Medal.—His Majesty the King has been graciously pleased to command that the " India General Service Medal, 1908," in silver, bearing on the obverse the crowned effigy of His late Majesty King George V, shall be granted with clasp " North-West Frontier, 1935," to the forces which were employed in the Loe Agra operations, on the North-West Frontier of India, between 23rd February and 13th April, 1935, both dates inclusive.

Appointments.—The following appointments will take effect early in June, 1936:—

Lieutenant-General Sir John F. S. D. Coleridge, K.C.B., C.M.G., D.S.O., Secretary, Military Department, India Office, to be General Officer Commanding-in-Chief, Northern Command, India, *vice* General Sir Kenneth Wigram, G.C.B., C.S.I., C.B.E., D.S.O., A.D.C., retiring from the Service.

Major-General R. C. Wilson, C.B., D.S.O., M.C., Commander, Rawalpindi District, to be Secretary, Military Department, India Office, *vice* Lieutenant-General Sir John Coleridge.

Major-General E. de Burgh, C.B., D.S.O., O.B.E., Deputy Chief of the General Staff, Army Headquarters, India, to be Commander, Rawalpindi District, *vice* Major-General Wilson.

Major-General C. J. E. Auchinleck, C.B., D.S.O., O.B.E., Commander, Peshawar Brigade, to be Deputy Chief of the General Staff, Army Headquarters, India, *vice* Major-General de Burgh.

MECHANIZATION TESTS.—Various experiments in the mechanization of "A" Echelon of the First Line Transport have lately taken place in the 2nd (Sialkot) Cavalry Brigade, under the command of Brigadier F. Gwatkin, D.S.O., M.C. The object of these trials has been to ascertain the capabilities and limitations of light ("baby") cars, four-wheeled lorries, six-wheeled lorries, and four and six-wheeled motor ambulances. The outstanding feature of the trials was the fine performance of the modern four-wheeled load-carrying vehicle, when fitted with large-sized low-pressure tyres and overall chains. These vehicles, which were severely tested over broken ground and in sand and mud, proved themselves fully capable of meeting the requirements of the division and of formations other than very mobile formations. That the performance of the four-wheeler is equal to that of the six-wheeler is not, of course, contended. The six-wheeler is a magnificent load-carrying cross-country vehicle, its capacity being limited only by its power and gear ratio and seldom by the ground. Six-wheelers, unfortunately, cost three times as much as four-wheelers of the same load-carrying capacity, and it is therefore impossible to provide them in large numbers in peace. A few of them will, however, always be necessary, within the Division, for salvage work or for use in an emergency. The four-wheeler, it must be admitted, does not fulfil all the requirements of a mobile force, such as a cavalry brigade, under the conditions of war. Their cross-country performance, although good, is not high enough to enable them to keep up with mobile troops under all conditions. For work with cavalry all vehicles, except light cars, must be tracked or be six-wheelers, with overall chains. Light cars were also tested, within cavalry Regiments, for purposes of reconnaissance. It was found that they could not replace the motor-cycle despatch rider, but that they were very useful as standing patrols for watching distant road and track junctions and saved the horses much fatigue. They should, of course, like all mechanical vehicles and devices, be used in pairs. They were also employed as a rapid means of conveyance for officers summoned to attend a Brigadier's conference, and saved much time.

Cavalry field ambulances were divided into heavy and light sections, consisting respectively of six-wheeled and four-wheeled motor vehicles. One light section was generally sent forward with cavalry regiments actually in action, while the others remained with "A" Echelon. The O.C. Field Ambulance was well pleased with the performance of his four-wheelers and was of the opinion that the heavy section might be replaced by a light section. This would afford the advantages of homogeneity throughout the unit, and furthermore would obviate the necessity for transferring the stretcher cases from the light to the heavy section. The General Staff are, however, of opinion that complete reliance cannot yet be placed on the four-wheeler, and that as the *moral* of an army depends largely on the rapid and efficient evacuation of casualties, no unnecessary risks should be run. The presence of at least one heavy section per field ambulance is, therefore, considered essential.

FOREIGN

HOLLAND

The Dutch Parliament has voted a special defence fund of £6,200,000, with the object of strengthening Holland's defences in view of the present tension in Europe.

The Dutch air force is to be strengthened. The lines of the rivers Rhine, Meuse, and Scheldt are to be fortified, and bridgeheads will be constructed. The army authorities have called for immediate tenders for defence works near Roermond, in Limburg, and will construct new coastal defences.

ITALY

Four hundred French officers of the Reserve, led by General Sornon, have paid a friendly and unofficial visit to Italy. Before leaving France the officers went to the cemetery at Bligny, where those Italians who died fighting on French soil are buried. The officers gathered a handful of earth, which they placed in a small casket and took with them to Rome. The tour included a visit to King Victor Emmanuel at the Royal Palace, and an audience with the Pope. They laid a wreath on the tomb of the Unknown Warrior, and later a delegation went to see Signor Mussolini at the Palazzo Venezia, where the officers handed over the casket of earth to him.

ROUMANIA

Roumania has signed a Franco-Roumanian trade and financial agreement and has ordered armaments in France to the value of £10,000,000. Bucharest will hand over to the French financial group " Petrofina," for a period of twelve years, three-quarters of the State levy on Roumanian petroleum. This is estimated to be worth about £1,000,000 per annum.

SOVIET UNION

STRENGTH OF SOVIET ARMY.—The Soviet forces, on 15th January last, according to the latest official figures given by a Soviet Minister, had a strength of 1,300,000 men.

A RED ARMY FILM.—A cinematograph film of the Red Army was shown at the Soviet Embassy on the 15th March, and the Editor attended by invitation. The film was intended to represent the manœuvres round Kiev last September, and was accompanied by an intermittent commentary in English. The " shots " appeared to have singularly little relation to the narrative of the manœuvres, and the repeated appearance of cavalry galloping aimlessly across a plain, of infantry advancing towards or retiring from no clearly defined objective, and of machine guns bobbing up from a camouflaged pit in the ground or firing through hedges, all gave the impression of " sets " staged for the camera, but having little relation to any clearly defined plan of operations, much less to the realities of modern warfare. One of the " high spots " of the film was the landing of a force of infantry released in parachutes from large (four-engined) bomber aircraft. As a spectacle this was distinctively impressive, and the hardihood of the rank and file of the Red Army in undergoing this experience compelled admiration ; but, however enterprising, the achievement begged the question as to its practical utility. A force dropped behind the enemy's front in this manner might have a disturbing effect, but it could only be very local and very temporary, and it would find itself entirely isolated except for such supplies or reinforcements as could be brought by air—a precarious line of communications. On the other hand, quite a small demolition party dropped by parachutes might be able to inflict serious damage to railway communications, or even to insufficiently guarded aerodromes, munition dumps, etc. It is possible, too, that in the minds of the Soviet authorities there is the notion that the " home front " would first have been penetrated by political propaganda, when the support of even a small Red military force would act as a spark to set fire to revolution, which would lead to the complete disintegration of that front. To a limited extent,

reinforcements might be transported by this method. Another " feature " of the film was the landing of light tanks and other mechanized vehicles transported beneath the under-carriage of large aircraft. This presupposes a suitable landing ground and absence of enemy interference until the tanks have got clear of their parent aeroplanes, when again the problem of supplies occurs in even more acute form than would be the case with the more self-supporting human cargo. The film ended with a grand march past through Kiev, with the populace—now released from their anti-aircraft drill—welcoming the Workers' and Peasants' Army with vast enthusiasm. The impression left was that the Red Army has had mechanization superimposed on it in rather a spectacular form, but that it is still fundamentally composed of the old cavalry and infantry of the line of the days of Imperial Russia—the whole intended for warfare where there is considerable freedom of movement against an enemy with similar characteristics. The aircraft, which played a conspicuous part in the production, appeared to be particularly oblivious to interference by anti-aircraft fire.

SWITZERLAND

The Federal Council has decided drastically to reorganize and re-equip the Swiss Army and to buy forty new aeroplanes at a cost of over £300,000. In future, the army will include covering troops, stationed on the frontiers to protect the mobilization of the field army. The field army will be organized in accordance with the experience gained during the 1934 manœuvres and will consist of eight " light " divisions, each fully equipped with machine guns, in place of the existing six " heavy " divisions. Herr Minger, Minister for War, explained that the sum of over £5,000,000, voted by Parliament two years ago, had been expended on armaments, increased air force, and on defences on the northern frontier.

AIR NOTES

HIS MAJESTY THE KING

His Majesty's appointments in the Royal Air Force were: Group Captain, 5th December, 1922; Air Marshal, 1st September, 1930; Air Chief Marshal, 1st January, 1935; Marshal of the Royal Air Force, 21st January, 1936.

FUNERAL OF H.M. KING GEORGE V.—The following message was sent by command of His Majesty the King to all Home Commands of the Royal Air Force:—"I have it in Command from His Majesty the King to convey to all officers and men of the Air Forces who participated in to-day's ceremonies his appreciation of the highly efficient manner in which they discharged their duties. His Majesty has further desired me to congratulate all ranks on their excellent appearance and bearing, which gave him great satisfaction.—SWINTON."

H.R.H. THE DUKE OF YORK

His Royal Highness Albert Frederick Arthur George, Duke of York, K.G., K.T., G.C.M.G., G.C.V.O., was promoted to Air Chief Marshal, to date 21st January, 1936.

ROYAL AIR FORCE

AIR ESTIMATES

The Air Estimates for 1936 make provision for a gross total expenditure of approximately £43,500,000, the net total being £39,000,000. They are by far the largest which Parliament has been asked to vote since the War. The main details of the expansion of the Royal Air Force, which is the principal feature of the Estimates, are dealt with in the Lecture published in this JOURNAL (see p. 347 *et seq.*). The following summary of some remarks made in his speech to the House by the Under-Secretary of State for Air, when presenting the Estimates on 17th March, supplement that Lecture.

As regards our fighting strength, he said, the Air Force now in formation was designed after careful review of character, quality, and numbers. They had every reason to consider it a most efficient instrument. On present calculations, they believed it to be adequate.

They had every reason to be satisfied with the new types of aircraft which had emerged, or are emerging, from the shops. They had a new single-seater fighter, which had achieved a speed of well over 300 m.p.h. Another which had just begun its flying trials was confidently expected to give us at least the same speed. The former type will now go straight into production. According to the latest information in their possession, it would be the fastest aircraft of this category in service in the world. Another key type in the programme was the medium bomber. In this category they had two or three types of the very highest promise about to pass into large-scale production. One of them—the development of a machine presented by Lord Rothermere, afforded an interesting illustration of the different characteristics which were increasingly called for between purely civil and military types. To adapt it for military use, its designer found it necessary drastically to recast the whole lay-out of the machine. It had been converted from a low-wing monoplane

to a mid-wing monoplane. All the indications were that in speed, range, and load-carrying capacity this type would be quite outstanding.

A new and particularly interesting form of metal construction was called the "geodetic system." In this there were no internal struts or bracings, either in the wings or in the fuselage. The loads were taken by the surface structure, which was built, rather like a somewhat open basket, of a number of metal strips. These were always placed correctly with relation to the amount and direction of the stresses which they had to bear. The result was a light and strong system with unrestricted internal stowage space and a substantial saving in weight as compared with their previous best systems of monoplane construction.

An effective device had been invented by Farnborough for preventing the formation of ice on wings, and it was now produced commercially. It made use of a strip of leather kept moist with ethyline glycol and attached along the leading edge of the wing.

By giving greater freedom and greater responsibility to the manufacturers they took certain risks. They felt it was right to take them, in order to speed up production when new design and development held good promise. The response of the manufacturers had been everything that could be desired.

As a measure of the progress already achieved, it might be stated that the total output of the British aircraft industry in 1935 was approximately equal to that of the United States.

CIVIL AVIATION.—A Lecture on the development of British Civil Aviation and of Imperial Air Routes, which was delivered at the Institution by Lieut.-Colonel Sir Francis Shelmerdine, Director-General, will be published in next quarter's JOURNAL.

APPOINTMENTS.

The following appointments have taken effect as from the dates shown :—

AIR COMMODORES.—T. L. Leigh-Mallory, D.S.O., to Headquarters, Iraq Command, as Senior Air Staff Officer, to date 6th January, 1936; C. F. A. Portal, D.S.O., M.C., to Special Duty List, as Instructor at Imperial Defence College, to date 14th January, 1936.

GROUP CAPTAINS.—H. V. Champion de Crespigny, M.C., D.F.C., to No. 8 Flying Training School, Montrose, in command, to date 1st January, 1936; C. H. Elliott-Smith, A.F.C., to No. 9 Flying Training School, Thornaby, in Command, to date 2nd March, 1936; L. F. Forbes, M.C., to No. 1 Flying Training School, Leuchars, in Command to date 16th March, 1936; L. T. N. Gould, M.C., to Headquarters, Coastal Area, Lee-on-the-Solent, as Senior Equipment Staff Officer, to date 2nd March, 1936; J. B. Graham, M.C., A.F.C., to School of Naval Co-operation, Lee-on-the-Solent, in Command, to date 2nd March, 1936; A. Gray, M.C., to Department of Air Member for Personnel (Directorate of Training), Air Ministry, to date 13th January, 1936; R. S. Maxwell, M.C., D.F.C., A.F.C., to Royal Air Force Station, Mildenhall, in Command, to date 23rd January, 1936; A. H. Peck, D.S.O., M.C., to Headquarters, Far East Command, Singapore, as Senior Air Staff Officer, to date 21st December, 1935; J. C. Russell, D.S.O., to Royal Air Force Station, Aldergrove, in Command, to date 28th January, 1936.

MENTIONED IN DESPATCHES.

The undermentioned officers have been mentioned in despatches in recognition

of their distinguished services in connection with the Loe-Agra operations, North-West Frontier of India, February to April, 1935:—

Squadron Leader J. MacGregor Fairweather, D.F.C.
Flying Officer W. J. Craig.

PERSONNEL.

IMPERIAL DEFENCE COLLEGE.—The following officers completed satisfactorily a course at the Imperial Defence College, which terminated in December, 1935:—Group Captain C. C. Darley, C.B.E., A.M.; Wing Commanders G. B. A. Baker, M.C., Hon. R. A. Cochrane, A.F.C., H. H. M. Fraser, and A. S. G. Lee, M.C.

R.A.F. STAFF COLLEGE.—The next qualifying examination for the R.A.F. Staff College will be held from Tuesday, 19th January, to Thursday, 21st January, 1937, inclusive.

PROMOTION EXAMINATIONS "B" AND "C."—Promotion Examinations "B" and "C" will be held on 8th, 9th, 10th and 11th September, 1936.

The order in which subjects will be taken is shown below:—

Date.	*"B" Examination.*	*"C" Examination.*
8th Sept. ..	I. Flying and Airmanship.	I. Air Operations (Land).
	II. Flying Operations "A."	II. Air Operations (Sea).
9th Sept. ..	III. Flying Operations "B."	III. Administration.
10th Sept. ..	IV. Airframes.	IV. Law.
	V. Aero Engines.	V. Imperial Geography.
11th Sept. ..	VI. Organization and Discipline.	VI. Hygiene and Sanitation.
	VII. Administration.	VII. Organization.

GORDON SHEPHARD MEMORIAL PRIZE.—The Memorial Essay Prizes were established by Sir Horatio Hall Shephard, in memory of his son, the late Brigadier-General G. S. Shephard, D.S.O., M.C., R.A.F. The competition is open to all members of the Royal Air Force for essays on reconnaissance and kindred subjects.

The following were the awards in the 1935 competition:—

1st Prize, value £35.—Squadron Leader R. S. Sorley, D.S.C., D.F.C., *p.s.a.*, Imperial Defence College.

2nd Prize, value £25.—Wing Commander R. H. M. S. Saundby, M.C., D.F.C., A.F.C., *p.s.a.*, R.A.F. Staff College, Andover.

3rd Prize, value £20.—Wing Commander R. L. Stevenson, M.B.E., Headquarters, Western Area.

UNIVERSITY COMMISSIONS.—Seven University candidates have been appointed to permanent commissions in the General Duties Branch of the R.A.F., with the rank of Pilot Officer—five from Cambridge, one from Oxford, and one from Bristol.

ATTACHMENT OF FOREIGN OFFICERS.—Captain Napakas, of the Siamese Military Air Service, was attached to No. 1 School of Technical Training, Halton, from 3rd to 15th February, 1936, and to R.A.F. Station, Calshot, from 16th March to 9th April, 1936.

Lieutenant G. A. Westring, of the Swedish Air Force, has been attached to the R.A.F. Station, Mildenhall, from Wednesday, April 1st, 1936, for a period of two months.

CHANGES IN SERVICE UNIFORM.—Important modifications in the Service uniform of officers and airmen of the Royal Air Force, which was introduced shortly after the Great War, will be made in the near future. The changes have been

decided upon because experience has shown that the comfort and efficiency of the personnel will be materially enhanced thereby.

The most important change common to both officers and airmen is the abolition of breeches and puttees; officers' field boots are also to be abolished. Trousers will in future be worn on all occasions by all ranks. A blue web gaiter has, however, been approved for use in inclement weather.

A blue field service cap, similar to that which was worn by the Royal Flying Corps, has been adopted for all personnel. It will be worn regularly on normal duties at R.A.F. stations and elsewhere, and can be adapted for use as a flying helmet when so desired. The present round peaked cap is being retained for ceremonial and other appropriate occasions.

In future, officers will wear a blue shirt and semi-stiff collar to match. The black tie will be retained, but the present stiff white collar and soft white shirt will disappear.

Airmen will be supplied with an open-neck jacket instead of the close-fitting type; with it they will wear a blue-grey collar and a black tie. This is similar to the dress already authorized for sergeants.

The changes in officers' dress will be introduced as from 1st May, but the order will not be compulsory until 1st September. In the case of airmen, arrangements are being made for new issues to begin from about the latter date.

Organization.

New Squadrons.—Formation of four new squadrons commenced at the stations and on the dates shown hereunder :—

Unit.	*Station.*	*Date.*
No. 49 (Bomber) Squadron.	Bircham Newton.	10th February.
,, 64 (Fighter) ,,	Henlow.	1st March.
,, 98 (Bomber) ,,	Abingdon.	17th February.
,, 218 (Bomber) ,,	Upper Heyford.	16th March.

Nos. 49 (B), 98 (B) and 218 (B) Squadrons are being equipped with light bomber type of aircraft, and will form part of the Central Area of the Air Defence of Great Britain.

Auxiliary Air Force.—The following cadre (Special Reserve) squadrons will be converted into squadrons of the Auxiliary Air Force in the near future. The County Associations will be responsible for the administration of the squadrons after their conversion; they are being expanded into Territorial Army and Air Force Associations :—

No. 500 (County of Kent) (Bomber) Squadron, Manston—Kent.
,, 501 (City of Bristol) (Bomber) Squadron, Filton—Gloucester.
503 (County of Lincoln) (Bomber) Squadron, Waddington—Lincoln.
,, 504 (County of Nottingham) (Bomber) Squadron, Hucknall—Nottingham.

Singapore Volunteer Air Force.—A Volunteer Air Force was inaugurated at Singapore on 25th March, 1936. A number of officers and airmen of the Royal Air Force have already left England for Singapore to assist in the training of the unit, and others will follow later in the year. The majority of the personnel of the Force, both for flying and for maintenance duties, will be recruited locally.

The first unit of the Force will be primarily trained for co-operation with the fixed defences of the Base, and will be equipped with a type of aircraft similar to

that used in the Royal Air Force for these duties. It will be, for the present, accommodated at the Air Force aerodrome at Singapore, but will move to the new civil aerodrome at Tanjong Rhu as soon as suitable buildings are available for it. The cost of these buildings is being defrayed by the generosity of the Sultan of Johore. The unit is under the command of the Air Officer Commanding, Royal Air Force, Far East.

Exercises.

Winter Exercise.—Hitherto Air Exercises on a large scale have always been held at Home during the summer months, that being the time of year which coincides with the culmination of the annual training of the Regular and Territorial forces. This year, however, the Air Officer Commanding-in-Chief, Air Defence of Great Britain, decided to exercise part of his command in a small-scale exercise during February. The object was to test the effect upon control and intelligence organizations of intensive operations under winter conditions.

The exercise, which was originally intended to be carried out over a continuous period of twenty-four hours, commenced at 3 p.m. on Tuesday, 18th February, but was supended owing to bad weather at 2 a.m. on Wednesday, 19th February. Operations were resumed at 3.50 p.m. the same day, and terminated at 5.20 p.m.

Forces Taking Part.—The attacking forces comprised light and heavy bomber squadrons under the commands of the Air Officers Commanding, Central Area and Western Area, and consisted of 72 bomber aircraft. They were opposed by an equal number of fighters under the command of the A.O.C., Fighting Area.

Only a small section of the ground observation organization was in operation—manned partly by R.A.F. personnel and partly by volunteer members of the Observer Corps—and in view of the limited objects of the scheme no anti-aircraft or searchlight units were exercised. To simulate their disclosure by searchlights the raiding bombers displayed their navigation lights during their approach to the objectives.

Objectives.—The exercise was on the usual lines of bomber attack on selected objectives by day and night. For day operations the objectives were the Biggin Hill and Hornchurch aerodromes and Dagenham. The objectives for night attack were the Queen Mary Reservoir Waterworks, Ponders End Railway Station, and the Ford Works, Dagenham. Cameras obscura for checking the accuracy of the bombing attacks were installed at these targets.

Anti-Aircraft Co-operation.—A large proportion of the anti-aircraft co-operation undertaken in the past has resulted in much unproductive flying for Service units. Increasing use is therefore being made of civil aircraft for this task. This year it is anticipated that civil aircraft at home will carry out some 4,000 hours anti-aircraft co-operation flying for naval units, units of the Regular and Territorial Army, and for the Observer Corps.

General.

Royal Air Force Display, 1936.—The seventeenth R.A.F. Display will be held at Hendon on Saturday, 27th June. The Display is the culmination of the training season; it thus provides an opportunity for the public to observe the annual progress of Service aviation, and it also enables the development of new types of aircraft to be exhibited, both on the ground and in flight.

The proceeds of the Display will be allocated, as in past years, to the R.A.F Benevolent Fund and other Service philanthropic organizations.

Empire Air Day, 1936.—It has been decided to hold an Empire Air Day again this year, on the same lines as in 1934 and 1935.

OVERSEAS COMMANDS

ADEN

AUDHALI.—During a visit in January by an Air Staff Intelligence Officer to Laudar, news was received that an inter-tribal raid had taken place in Audhali country, near Mukeiras. In order to assist the Sultan in settling the disturbances as quickly as possible several of his men were flown to Mukeiras to organize a search for the culprits.

RECONNAISSANCE OF SOCOTRA ISLAND.—During February a combined reconnaissance of Soqotra Island was carried out by a destroyer and flying boat at the request of the Resident and Commander-in-Chief, with the object of obtaining information as to the suitability of the coast line for mooring and operating flying boats and of providing an opportunity for inspection of the island by a Political Officer, who was conveyed there by the destroyer.

During the passage from Aden to Socotra a seaman in the destroyer became seriously ill and was evacuated by flying boat to Aden, where he was admitted to the R.A.F. Hospital.

INDIA

TRIBAL INCIDENT BY HASSAN KHEL WAZIRS.—During June, 1935, a patrol of the Tochi Scouts, who were returning to Spinwam, met with a hostile demonstration from the Hassan Khel Wazirs of the Kaitu Valley, East of Spinwam. Subsequently the Political Agent, North Waziristan, saw a Hassan Khel jirga, and was told that, unless the Maliks were given new khassadars and increased allowances in return for the use of their country by Government forces, they would sever political connections with the British Government. The whole strength of the Hassan Khel khassadars was at once suspended in consequence, and most of the tribe emigrated to adjacent areas across the Durand line. The suspension of their privileges soon began to be felt by the tribe, and the discomfort of winter in their temporary shelters in Afghanistan resulted in the majority, although unrepentant, returning to their villages by November.

In the interim the tribe continued to perpetrate acts of defiance which led to a warning being given by the Government to the effect that any further acts of the kind would result in punitive action being taken against the tribe. A demonstration by nine aircraft was made over the area on 8th December, and printed notices warning the inhabitants of the Government's intentions were also dropped, since which no further offences have been committed.

CO-OPERATION WITH THE ROYAL INDIAN NAVY.—On 2nd December an aircraft, fitted with sleeve target, was provided by the Aircraft Depot for anti-aircraft practice by H.M.I.S. " Indus." This is the first occasion on which the Royal Air Force and the Royal Indian Navy have co-operated in exercises.

CO-OPERATION WITH 1ST FIELD BRIGADE, ROYAL ARTILLERY.—Between the 4th and 13th December air co-operation was provided by No. 1 Squadron, Indian Air Force, for the 1st Field Brigade, Royal Artillery, at Hyderabad (Sind). Four officers and six British airmen were attached to the Brigade during this co-operation.

FOREIGN

FRANCE

NEW TYPES OF AIRCRAFT.—The French Air Force is being equipped with new types of aircraft. The following are some details of them :—

Type.	*Cruising Speed— m.p.h.*	*Range— miles.*	*Bomb Load— lbs.*
Heavy Bombers.			
Bloch 200, twin-engined	147	930	2200
Bloch 210, twin-engined	172	1242	4400
Farman 221, four-engined	168	746 (normal) 1243 (maximum)	4400 (normal) 8800 (maximum)

Type.	*Cruising Speed— m.p.h.*	*Range— miles.*	*Guns.*	*Bomb Load— lbs.*
[1] *Bomber-Fighter-Reconnaissance.*				
Amiot 143, twin-engined ..	152	745	7	2200
Potez 54, twin-engined ..	167	621	3	1760

Type.	*Cruising Speed— m.p.h.*	*Range— miles.*	*Armament.*
Two-seater Reconnaissance. (Adaptable for Night Fighting).			
Les Mureaux 113	165	621	3 machine guns.
Les Mureaux 117	180	570	3 machine guns or cannon gun.
Two-Seater Fighter.			
Les Mureaux 115	175	572	3 machine guns or cannon gun.

Type.	*Top Speed— m.p.h.*	*Range— miles.*	*Armament.*
Single-seater Fighters.			
Dewoitine 300	231	450	2 machine guns.
Dewoitine 510	250	415	1 cannon gun, 2 machine guns.
Dewoitine 371	236	400	2 machine guns.
Bleriot 510	232	521	1 cannon gun, 2 machine guns.
Loire 46	248	450	2 machine guns.

[1] This type of aircraft, as its title indicates, fulfils a triple purpose :—

(*a*) As a bomber it can, with its speed, range, and useful load, reinforce bomber units in day or night bombing missions.

(*b*) As a fighter it is designed to afford a field of fire from every possible angle, and is equipped with from three to seven machine guns.

(*c*) For reconnaissance missions it takes the place of the two-seater observation aircraft which the French Air Staff regard as being incapable of entering a zone patrolled by active enemy fighters without exposing itself to certain destruction.

In addition to the above types, which have already been ordered, the following single-seater fighters are undergoing tests and are calculated to reach the speeds indicated below. These aircraft, if the tests prove satisfactory, will be included in the re-equipment programme, which will probably be completed by the spring of 1937.

Type.	*Calculated Top Speed, m.p.h.*
Morane 405	298
Loire 250	280
Nieuport 160	280

ITALY

THE AIR FORCE IN EAST AFRICA.—General Valle, Under-Secretary of State for Air, recently visited the Air Force units in East Africa. The following extracts from his published report of his tour are of interest :—

" Twelve days are necessary to prepare an aircraft for action in East Africa after its arrival by sea at its port of disembarkation. In Eritrea, thirty new air ports have been laid out, two of which are on Abyssinian territory ; of the latter the port at Gura is the largest on the African continent. There are sixty aerodromes in Italian Somaliland.

The Fighter Squadrons in East Africa have not been equipped with the latest fighter machines, as these have been retained for the safety of the home country. The maximum speed of the fighter aircraft with the Expeditionary Force does not exceed 174 m.p.h. They are equipped with machine guns and small 2 lb. bombs, and are used, in preference, for ground fighting.

The Italian Air Forces in East Africa are not used according to the original role of each type ; all types are used for reconnaissance, bombing or as fighters.

The Ethiopian anti-aircraft defence possesses numerous A.A. machine guns of Swiss Oerlikon manufacture, but up to the present it has been rather ineffective owing to insufficient training of the crews."

UNITED STATES

NEW ENGINES FOR U.S. ARMY AIR CORPS.—A recent report from the American Press states that tests on a number of aircraft engines, some of which surpass in power anything now in service, are being conducted at Wright Field, Dayton, Ohio. One, a twin-row radial air-cooled engine made by the Wright Aeronautical Corporation of Paterson, N.J., is said to exceed 1,200 horse-power at sea level, and an in-line geared engine made by the Allison Engineering Company of Indianapolis has a sea-level output in excess of 1,000 horse-power. Both are twelve-cylinder engines.

DOUGLAS TORPEDO-BOMBERS.—The U.S. Navy Department has placed an order for 114 torpedo-bombers with the Douglas Company. The significant feature of this contract is that it marks the introduction of monoplane type aircraft in carrier operations. The T.B.D. type torpedo-bomber is a new type of low-wing monoplane construction with a single engine, and it is reported that it will have a crew of three.

It is understood that these new aeroplanes are to be based on the two new carriers the " Yorktown " and " Enterprise," due to be completed next year. According to an announcement by the Navy Department, they will have " markedly greater

range as well as many improved characteristics of performance over previous types of this class. They will carry either torpedoes or bombs, but not both."

NEW BASE IN THE VIRGIN ISLANDS.—It has been announced that a new permanent U.S. Marine Corps aviation base is to be established on Saint Thomas Island, one of the Virgin group.

Observation Squadron 9-M will be stationed in the islands. The squadron at present has 6 Vought SU-1 scouting aeroplanes, 2 amphibians and 2 spares, with a force of about 100 officers and men. It is reported that it is intended to increase it to 2 squadrons, totalling 36 aeroplanes, with a corresponding increase of personnel.

In addition to providing a repair, storage and fuelling station for naval and marine aircraft during fleet manœuvres, the new base is viewed as of strategic importance in providing aid for the aerial defence of the Panama Canal in time of emergencies.

AIRSHIP CONSTRUCTION.—A Bill to authorize expenditure of $5,000,000 has recently been introduced before Congress with a view to promoting the development of lighter-than-air craft. According to the text of the Bill, the Secretary of the Navy is authorized and directed to proceed immediately with the construction of two airships :—

(1) A rigid airship of moderate size, capable of carrying scouting aircraft and having good radius and lift for use in training personnel and for such other activity as lies within its capabilities.

(2) A metal-hulled airship of such size as the state of the art will permit.

The Secretary of the Navy is further authorized and directed to confer with the Secretary of Commerce, with a view to encouraging the early inauguration of trans-oceanic commercial airship services, and is authorized to make available towards bona fide commercial airship activities such naval assistance as is compatible with existing law.

The Bill has yet to be passed by the two Houses in Congress before becoming law.

REVIEWS OF BOOKS

GENERAL

Haig. The Second Volume. By Duff Cooper. (Faber & Faber). 25s.

Mr. Duff Cooper's second volume continues the story of Haig's career from the close of the battle of the Somme until his death. In spite of—perhaps on account of—his appointment to the office of Secretary of State for War and consequent increase of his responsibility, he has obviously taken greater trouble to present the case of the Commander-in-Chief than in the first volume, and he makes out a very good one. Extracts from the diary and its appendices still, however, form the substance and limit the scope of the book. Yet it is clear that Haig did not confide a number of—at the time—secret matters to his diary. Thus, as the author himself points out, as regards the visit of General Pétain's emissary on the 2nd June, 1917, indexed, we notice, as " Debeney, Gen. Eugène, brings message to Haig regarding mutinies in the French Army," all that Haig records is :—

> " Debeney stated that the French soldiers were dissatisfied because leave had been so long suspended, that leave must be reopened at once, and that this would prevent Pétain from fulfilling his promise to attack on June 10th."

Now, Maréchal Pétain and General Debeney are still alive, and ought to have been asked for information, for our estimate of Haig's action in 1917 depends on what he was told. Both Haig's Chiefs of the General Staff—Generals Sir Lancelot Kiggell and Sir Herbert Lawrence, and most of the higher officers of his staff are still with us ; his Adjutant-General died only last month. Yet there is not a sign that any of them have been referred to in order to elucidate, and fill the gaps in the diary entries in regard to matters known to even minor members of the inner circle. For instance, one misses any mention of what the artillery and engineer staffs thought of the continuance of the Passchendaele operations, or of the stormy interview between Haig and Byng after the latter's blundering at Cambrai. The diary remains an imperfect record and insufficient basis on which to form a true estimate of Haig's military qualities, still less his character, and the book contributes little that is new, although its contents have special authority. As a picture of the man it must take second place to General Charteris's more intimate biography.

There is, however, much good reading in it. Remembering Mr. Duff Cooper's recent pillorying of Mr. Lloyd George in the columns of *The Times* as a fabricater of false statements about the Army, he must have thoroughly enjoyed writing the chapter on the trickery by which Mr. Lloyd George endeavoured at the beginning of 1917 to place the British Armies in France entirely under the command of General Nivelle ; and after the failure of that officer—as Haig expected—the Prime Minister's plan to make Italy the theatre for the main offensive, with British forces under an Italian general who in a few months, like Nivelle, was to reveal his military incapacity for high command. Only a strong man and patriot like Haig could have stood up to such constant mistrust and preference for foreigners.

The chapters on Passchendaele are the outstanding feature of the volume, and evident pains have been taken to remove the mass of legend and Lloyd Georgian

misrepresentation thrown over the battle. It was fought where and when it was at the demands of Admiral Jellicoe and General Pétain. The unfortunate interval between " Messines " and its beginning was due first to the delay of the War Cabinet in sanctioning the offensive and then to the French twice asking for postponement. Mr. Duff Cooper very properly divides the battle into four phases : the first successful advance ; the period of waiting due to rain ; the third, of three successful advances ; and the fourth phase, from the 5th October onwards, to which, and to which alone and not the whole battle, the stream of adverse criticism, forgetful of the successes, has been most unfairly directed. He easily disposes of the cry of tank enthusiasts that the battle should not have been fought in the Ypres area because it was not favourable to tanks ; for, in August, 1917, the Army as a whole thought very little of them—" the Australians [he quotes their Official History] even said that they would prefer to fight without them, and did so." Besides, " to abandon, at this date, a carefully prepared scheme of attack on the sole ground that the territory was ill-adapted for tank warfare is to show a lack of historical perspective."

The chapter on Cambrai is most disappointing ; we do not learn what induced Haig to fight the battle, and there is no mention of the subsequent Court of Enquiry. A special Addendum to page 193 is printed on page xii ; it corrects a mistake—mentioned as hearsay—in the diary, given in an extract published in advance in the *Sunday Pictorial* in regard to a certain hard-fighting division having " put up little or no fight at all " against the German counter-attack. There might have been more of such corrections.

The account of Haig's action before and during the March offensive fully confirms what has already appeared in the British Official History : after due warning of what was to come, the British War Cabinet ignored his officially pronounced views, and under cover of the Versailles Council, sanctioned the extension of the British line and the reduction of the strength of British divisions, and refused to provide reinforcements. The large share of Haig in the initiation and planning of the operations which brought final victory is made quite clear.

" Haig's diary ends abruptly on 11th November," and the book nearly does the same. The remainder of his career is dealt with in 31 pages, and 7 are devoted to an appreciation of him. The author cannot class him among the few men who possess the highest talents. But as " the mists created by prejudice, propaganda and false witness begin to scatter, the figure of Haig looms larger as that of the man who foresaw more accurately than most, who endured longer than most, and who inspired most confidence amongst his fellows." He might have added that even Mr. Lloyd George, with all the will in the world to supersede Haig, failed to discover anyone whom he dared to put in his place.

Gallipoli : The Fading Vision. By John North. (Faber & Faber). 15s.

The author of this book, the latest effort of an amateur to write a War history, starts by making the dogmatic and omniscient pronouncement that " surveyed with a godlike detachment the whole picture is doubtless a savage and squalid comment upon human follies and infirmities." Having endeavoured to prejudice the reader in favour of his own final verdict, he naïvely states that he has no intention of writing provocatively, but merely to chronicle " a story of human suffering." He is contemptuous of the Official History as having been unduly careful of reputations, although he admits that its " omissions and understatements " are " not so serious that it becomes impossible to read between the lines." Nevertheless, he finds it necessary " to marshal all the facts in a new manner." But this " new

manner " is not confined to mere marshalling of facts, but introduces, in bitter and concentrated form, the old charges of bad leadership and bad administration.

The reader will start to be on his guard when he reads the frank admission of Mr. North that his personal military experience was limited to service in France as a junior regimental officer during the latter part of the Great War, and that he never saw the Gallipoli peninsula until he visited it in a private capacity twelve years after the evacuation. He will become increasingly disinclined to take this writer's views at their face value as he realizes that, in compiling this indictment of the naval and military commanders, he has obviously been influenced by the murmurings of a few discontented and discredited newspaper correspondents and one or two disgruntled subordinate commanders. It is evident that he lacks the knowledge needed to sift evidence and balance criticism—indispensable qualifications for anyone who sets out to write history which will be of value as such.

In the light of subsequent events, it is fully realized that the independent attack by the Navy on the Straits, ordered by the Home Government before the Army could co-operate, was a great mistake ; even so there were weighty reasons for not delaying offensive action in this theatre of the War.

Of the naval commanders, Vice-Admiral de Robeck bore the greatest weight of responsibility. Whatever difference of opinion there may be as to whether even greater risks should have been taken afloat, he never failed the Army, either in that sea transport, on which it was wholly dependent, or in supporting fire. Those who were privileged to have personal contact either with the Vice-Admiral or his second-in-command—Rear-Admiral Wemyss, or his Chief-of-Staff—Commodore Keyes, could not fail to admire the loyal relations which were maintained between these three officers, notwithstanding the existence of serious differences of opinion as to strategical plans. Similarly, it may be confidently said that Sir Ian Hamilton retained to the very last day of his command, not merely the loyalty but the confidence and affection of his troops—the most precious of all personal endowments of a Commander-in-Chief. The original landings at Hellas and Anzac—especially Hellas—were feats of arms on which the British Army may well look back with pride. The tenacity and courage with which these places were subsequently held have rightly ever since been regarded by the whole British Empire as laurel crowns for the troops concerned, especially the 29th Division and the Anzac Corps. The Suvla landing was so skilfully planned and executed by the naval and military staffs concerned as to achieve a complete surprise of the enemy ; unhappily the Corps commander, who had been recalled after some three years on half pay, possessed no previous experience of command on active service. These disadvantages led to the lack of self-confidence and driving power needed for the inspiration of the inexperienced officers and men, who mainly composed this Division, to attain victory after the landing. Sir Ian himself ultimately intervened ; but it was too late. This was, indeed, a tragic failure, because it led to Bulgaria throwing in her lot with Germany, whereby direct railway communication between Berlin and Constantinople was guaranteed ; and this so changed the strategic situation as to negative further persistence in the Dardanelles enterprise. But, even so, Mr. North is not justified in his wholesale condemnation of the campaign as a military effort : his perspective is distorted by his invective.

As regards defects in administration in Gallipoli, it must be admitted that the original plan of campaign did not forsee the necessity for organizing Mudros as an administrative base for a prolonged occupation of Anzac and Hellas. The author, however, in his criticism, omits to state—perhaps he is not aware—that at G.H.Q.

and on the lines of communication Sir Ian Hamilton effected drastic changes in both administrative organization and personnel before the Suvla landing, the higher staff of the medical service in particular being changed and much strengthened.

The one commendable point in this book is the obvious desire of the writer to do justice to the courage and endurance of the rank and file, but as regards the higher command and administration, he is so ill-informed that, far from adding to authentic history, it seems to have been appropriately entitled a " Fading Vision."

The Problem of Japan. By Captain Malcolm D. Kennedy, O.B.E. (Nisbet & Co., Ltd.). 15s.

The " Problem " is posed at the outset by Inazo Nitobe, whose long-received theory of the Emperor as a mere " organ " of the Constitution was so recently queried with calamitous results for that eminent jurist and life-member of the House of Peers. " Nations in danger of economic strangulation "—Dr. Nitobe warned us—" will eventually resort to force to improve their positions." It is a timely reminder, with Italy's " promising " adventure looming in Africa, and Herr Hitler's hint of " discussion " about Germany's lost Colonies.

Captain Kennedy makes a shrewd point when he pits the robust and patient spirit of the Japanese " family " against such awesome " acts of God " as the earthquake of 1923—one of the most terrible in human annals, and he shows how great cities and ports rose again out of flaming chaos in the brief space of six and a half years. " It can't be helped ! (Shikata ga nai !) is here but a spur to new and heroic efforts rather than the dull anodyne of nerveless despair."

Hideyoshi's designs on the Phillipines so early as the XVIth century make significant reading in view of events ahead. But after the passing of Iyeyasu came the " Seclusion Policy " of 1638. Overseas empire was then abruptly shelved, and Japan withdrew from the world for two hundred years.

With her awakening—at the rough bidding of America's " Black Squadron " under Matthew Perry—modern history begins as a series of martial and industrial miracles almost without a break unto this day. So far back as 1854, Yoshida Shoin—a hopeful young stowaway in Perry's flagship, preached the " Araki " evangel of force as a factor in the destiny of a Greater Japan. Even then, part of Manchuria was to be seized, as well as Formosa, the Kuriles, and Luchu Islands. Yoshida urged his people first to " learn from the foreigner " and then adapt his ways and weapons to the eager genius of Dai Nippon, " and gradually to show an aggressive policy." This militant counsel, born out of due time, was to cost Yoshida and his followers their lives. But the seeds of expansion they sowed lived on until the " back-to-Asia " movement of the fighting Services—which may be said to date from 1931—inaugurated a surge of incalculable drift, and one full of perplexity for the Western Powers in the near future.

The author deals justly with the Anglo-Japanese Alliance, whose abrogation in 1922 is still regretted in naval circles. And he quotes a propos the wistful remark of a native statesman to Lord Redesdale, which the latter gives in his account of The Garter Mission to Japan : " Look at these two Island Empires " (on an outspread map) " Are they not like two eyes in a face ? If only they could see together ! "

America's Exclusion Laws, with the " White Australia " policy and racial discrimination in our other Dominions, are shown to have wounded Japan's pride and stiffened her aims in East Asia and the Pacific. Friction with Soviet Russia in

the Two Mongolias and Sinkiang, as well as the implacable hostility of China towards her minatory mentor—are likewise treated in this book. Here the author recalls Sir Robert Hart's likening of " his " China (and what Briton ever knew its collective soul so well ?) to " the green bamboo, which can be bent but not broken."

This work can claim no distinction of style, and one misses in it a full analysis of Japanese " duality " ; which is to say, the co-existence of Western ways side by side with that latent mediævalism which is implied in the term, Yamato Damashi, or the " Spirit of Old Japan," and Bushido—the " Warrior's War " (i.e., of the Sword) : as the first of the Three Imperial Treasures in a polity that stands alone in our modern world. But it will prove useful to the student of Far Eastern affairs, provided he realizes that the bias of the author is markedly pro-Japanese. The sketchiness of the maps is partly atoned for by a good index and a list of important dates.

Ethiopian Realities. By Major Polson Newman. (Allen & Unwin). 3s. 6d.

The author puts forward, in a reasonable and moderate manner, the Italian case against Abyssinia. He gives a resume of the history of Ethiopia from 1855—the year of Theodore's coronation—down to the present day. He shows how the opening of the Suez Canal in 1869 completely changed the importance of the Red Sea, which, from being an uninviting backwater, suddenly became one of the main corridors of the world.

Generally speaking, the author's contention is that Ethiopia is a country of disorder, slavery, and servitude. Nearly all Abyssinians carry arms. Raids across the Italian border into Eritrea were of common occurrence. The economic system of the country is founded on slavery and, in spite of the Emperor's edicts, no real efforts have been made by the officials or the Church to put an end to it. Moreover a feudal system of servitude is in force whereby one or more families of vanquished tribes are allotted as serfs to each Amharic family.

The Ethiopians, he says, possess a fertile country, rich in raw materials which they cannot develop themselves. Moreover they have steadfastly refused to allow anyone else to develop it for them. The Italians have hardly any colonies and lack raw materials. They also have no place under the Italian flag to which their surplus population may migrate. Nature abhors a vacuum and when the forces of order are faced with those of disorder, a clash is inevitable. The basic causes which have extended the British Dominion from the banks of the Hooghly to the foot of the Hindu Kush are now at work in Africa.

This book should be carefully studied, particularly by those whose idealism seems to have completely obscured their sense of reality.

NAVAL

Brassey's Naval Annual, 1936. Edited by Commander C. N. Robinson, R.N. (William Clowes). 25s.

This, the forty-seventh issue of Brassey, reverts to its former title : the words " and shipping " having been omitted. As the change implies, the Merchant Shipping section and silhouettes have disappeared. All connection with the Merchant Navy has not been severed, however, as an interesting chapter dealing with the Naval Reserves, by Captain H. S. Lecky, C.B., A.M., R.N., is included.

To compensate for the omission of this section the Naval Air section has been very greatly enlarged, and consolation for the loss of the former may perhaps be

found in realization that the Navy's air service is of scarcely less concern to the Mercantile Marine than it is to the Fleet. In response to an invitation by the Editor, the Chief of the Bureau of Naval Aeronautics, U.S. Navy, has contributed a chapter explaining why the U.S. Navy insists—and has succeeded—in retaining complete control of its own Air Arm. American defence requirements differ from our own in that the former has no potential continental air menace ; on the other hand, the United States are to a very great extent self-supporting. This country's entire dependence upon its seaborne commerce calls for most careful consideration as to whether co-operation between the Sea and Air Services, under the present system of divided control, can ever be efficient as part of those safeguards of our sea communications which are so vital.

The present international political situation and the recent London Naval Treaty give added importance to the chapter on Foreign Navies.

Rear-Admiral H. G. Thursfield has written an article on " Sanctions " as they are applicable to the Navy. The Prime Minister said in a recent speech [1] : " To a great extent sanctions are slow in action and lose a great deal of their force unless they can be supported by the ultimate sanction, which is blockade or force." It is not very clear how " Sanctions " as applied under the Covenant of the League of Nations can be reconciled with " Blockade," which, according to text-books on International Law, is essentially an act of war. This chapter seeks to explain the matter.

Another change in this year's *Brassey*—i.e., publication in April instead of in January—allows of the inclusion of the Naval Estimates for 1936. Those for 1935 are also included, which facilitates comparison. It is understood that the later date will be adhered to in future.

The Reference Section, in addition to many useful statistics, contains the Anglo-German Naval Agreement and the full text of the London Naval Treaty, 1936. As the latter was only signed on 25th March and *Brassey* was received on 6th April, the compilers may be congratulated on being so up to date.

In spite of exceptional trials and difficulties, the Editor has fully maintained the high standard of this invaluable publication, which for many years he has done so much to build up.

By and Large. By Vice-Admiral Sir Barry E. Domvile, K.B.E., C.B., C.M.G. (Hutchinson). 12s. 6d.

With a versatile, at times almost a volatile mind, an easy pen and some literary courage, Admiral Domvile provides his readers with some hours of much enjoyment. Descriptions, gay and serious, are well written ; stories, proper or delicately veiled, are told with his native humour. His history is occasionally at fault, as, for instance, his comparison of the strength of the Knights of St. John at Rhodes and Malta. It was, in fact, quite late in their occupation of Malta that they became weakened. He may not secure general agreement with his view that justice to minorities is at times sloppy sentiment, but in these pages we are mostly concerned with his criticism of naval administration in its widest implications. Interspersed amongst general matters, he gives us his views on specialization, staff work, and Admiralty conduct.

A Gunnery Officer himself, he deplores the concentration of mind which he avers comes from too great a study of one branch of the Service. His plea for breadth of

[1] Reported in the Sunday Press of 19th April, 1936.

vision and the freeing of officers of Commanders rank from the trammels of specialization will meet with general sympathy; whether he presents the case well is another matter—as a rule it is a mistake to take individual instances to prove a general case. Ignorance of the potentialities and limitations of his weapons certainly does not tend to produce an efficient leader.

Admiral Domvile speaks of the lack of spirit in high commanders during the War, and compares them with their predecessors of the XVIIIth Century; he displays, in his slap dash pronouncements, some narrowness of view; moreover such a verdict from one who has not experienced the responsibilities of high command would only be convincing if it were supported by evidence that he had analysed the bases of his convictions: of this he gives no sign. This is to be regretted, for properly presented, his views might have been of value.

Four pages are devoted to the incidents at Invergordon in 1931. Here Admiral Domvile is not at his best, for it is difficult to discover what is in his mind. He attacks "The First Lord," but appears to allude to two separate individuals under the same title—the First Lord who was in office when the incidents took place, and his successor; he does not say what were their precise shortcomings except some vague allusions to one of them having been nourished in an atmosphere of "safety first," whatever that may mean? Again (on page 197), he says that the outburst of feeling was most unfair to the Board of Admiralty, but on the next page he argues that the Board ought to have resigned. This is followed by the extraordinary suggestion that "if the announcement of their departure had been skilfully timed to coincide with something more sensational in the news, it would not have caused much comment outside the Service." Does he really imagine that the resignation of the whole body which directs and administrates the British Navy could be a matter of little or no interest to the rest of the nation or even to the world at large? Perhaps it has not occurred to those who may share his view that it would have been an act of weakness for Flag Officers with the responsibilities of the Sea Lords to have tendered their resignation in the midst of a crisis, with which, however created, it was clearly their duty to deal.

MILITARY

Memoirs of an Unconventional Soldier. By Major-General J. F. P. Fuller, C.B., C.B.E., D.S.O. (Ivor Nicholson & Watson). 21s.

General Fuller's autobiography, except for eighty pages at the beginning and the last two chapters, is entirely taken up with his connection with the Tank Corps, which he joined as its chief Staff Officer in December, 1916, four months after these machines were first let loose upon the enemy in the battle of the Somme. It was his task to create a doctrine and to read the riddle of the future. He had an agile brain, a thoroughly unorthodox outlook, and a drive and fanaticism that could overcome obstacles which would have appalled most men. From the start he had to deal with policy, training, organization, expansion and the hundred and one other matters connected with a newly formed corps and, indeed, he would have us believe that he bore this burden almost alone.

He regarded Sir Douglas Haig and G.H.Q. as the determined enemies of the Tank Corps and on page after page he heaps ridicule and insult upon them for what he believed to be their obstructiveness and stupidity. He could not realize then, he cannot apparently realize now, that men in responsible posts cannot afford to

take great risks with new and untried arms. Tanks were not the only new weapons ; there were gas, super-heavy guns and aeroplanes, all of which had their backers who claimed to be able to win the war on their own. The truth is that judgment as to the higher direction of war is bound to be distorted if one is in a subordinate position, can look at it from only one angle and is not in possession of all the facts.

Wisdom after the event is easy, but, to do General Fuller justice, his array of papers and memoranda written at the time go to reinforce his present criticisms. Early in 1917 he foresaw that prolonged preliminary bombardment and destruction of terrain and communications would be fatal, not only to the movement of tanks, but to the success of any big offensive. Tank H.Q. were appalled at the methods upon which it was decided to fight Passchendaele and protested but without success. The preliminary bombardment lasted fifteen days and the area was reduced to a bottomless bog over which tanks and infantry could hardly move. General Fuller is merciless in his criticism of those responsible for this ghastly shambles. He then takes us to the battle of Cambrai, where tanks were, for the first time, correctly used, and hints that it owed its genesis to a paper of his. Then follows the March offensive in which the tanks do not appear to have taken an adequate part and the great tank battle of 8th August, which spelt defeat for the German army in the field.

Towards the end of the War General Fuller was transferred to the War Office, and we read of his ceaseless struggles to get men in the face of opposition, and he frequently appealed direct to Mr. Winston Churchill, to Sir Henry Wilson, and to Lord Northcliffe to get his ideas imposed upon his superiors. He even advised Sir H. Wilson to get rid of Haig. As may be expected he disapproved of almost everyone with whom he had any dealings, and he reserves some of his bitterest jibes for the finance department of the War Office. Yet side by side with this rather cheap stuff he gives a very remarkable picture of future warfare in " Plan 1919," in which his vision had full play.

General Fuller's post-war career has been a tragic story of misunderstandings and lost opportunities on both sides. He finally retired rather than accept an uncongenial appointment.

It is difficult to appreciate correctly the value of this extremely interesting book. One is bound to recognize the genius that foresaw the possibilities of the new arm and the tenacity with which he fought for its proper use. He has had a marked influence on the future of mechanization. He was generally right in his views, but he has repeatedly weakened his case by the extravagance of his abuse. In the light of history G.H.Q. were probably too conservative, out of touch with the front line troops, and made many and far-reaching mistakes. Yet the triumph of the last hundred days, which brought the war to a rapid end, was almost entirely Haig's. General Fuller finds this difficult to explain in the light of his reckless abuse. He is forced to the conclusion that Haig was at the last successful because he adopted his (Fuller's) ideas !

One could wish that General Fuller's brain was still at the service of the State, but the pages of the book reveal an egotism and an intolerance that must have made team work with him exceedingly difficult.

Stonewall Jackson and the American Civil War. By the late Colonel G. F. R. Henderson, C.B. (Authorized American edition. Longmans). 21s.

This edition in one volume of the immortal " Stonewall Jackson " should be assured of a warm welcome by British officers. Colonel Henderson's biography

was virtually the text-book on the art of war for those of the old Army before the Great War, and that it has retained its value for their successors is proved by the fact that this is the fifth edition since 1918.

It would seem that in recent years Jackson's " stock " has somewhat depreciated. This was perhaps inevitable ; sooner or later the great merits of Grant and Sherman were bound to win recognition. They have now come into their own. It is significant that it is two English military writers—General Fuller and Captain Liddell Hart—who have materially contributed to the high esteem in which the two Federal generals are held to-day. It has been observed by Americans themselves that the Civil War was much better understood in England than in the United States. Had the officers of the U.S. army studied " Stonewall Jackson " with a tithe of the care bestowed upon it at Camberley, the American Expeditionary Forces in 1918 would have reaped the advantage. The experience of the Great War has set up a new scale of military values and has taught the special need of " team work." Jackson was only at his incomparable best when he was in command of an independent detachment, as in the Valley campaign and his great flank marches at the Second Manassas and Chancelorsville. In the Seven Days' battles before Richmond he proved a sad disappointment to Lee. Colonel Henderson explains, if he does not justify, his comparative failure. It is impossible, however, to avoid a comparison between Mr. Freeman's monumental biography, published in 1934–35 of Lee and " Stonewall Jackson " ; in historical quality the American's superiority is apparent, because he does not gloss over or disguise his hero's failures. His researches have thrown fresh light upon the operations in Northern Virginia, and this new edition of " Stonewall Jackson " might well have included a preface bringing the narrative up to date. The Valley campaign would then have been shown in a somewhat different perspective. At the outset Lee's was the purely military object of saving Fredericksburg from the Federals. It was not until he marked the reaction at Washington, which followed upon Barks's defeat and flight across the Potomac, that he began to pay serious attention to President Lincoln's psychology. It appears too that Jackson's attack at Kernstown had nothing to do with the retention of McDowell's corps near Washington. Mr. Freeman has also given a very different interpretation of Lee's strategy in his campaign against Pope, showing that Jackson precipitated a battle which Lee wished to avoid because it would interfere with his ulterior purpose of invading Pennsylvania in 1862.

It may be predicted that Colonel Henderson's biography will in the future be studied and treasured by soldiers and, if they are wise, also by statesmen, because he has used a somewhat idealized Jackson to illustrate lessons of imperishable value in the art and science of war.

Tunnellers. By Captain W. Grant and Bernard Newman. (Jenkins). 15s.

This book, originally intended by Captain Grieve for Tunnellers, has been redrafted by Mr. Bernard Newman to make it intelligible to the general reader. Considering the highly technical nature of the operations described, this was a difficult task, which has been most successfully accomplished. The authors deal with the work of the Tunnelling Companies during the war and make very full comments on the co-operation of Tunnellers with other arms of the Service.

The opening describes the events at the end of 1914 which led up to the formation of these units. It shows clearly how disjointed and disconnected their early operations were. This was probably unavoidable. Units had to learn how to adapt their skill to military conditions and staffs how to employ them. (An interesting

point raised is whether more use could have been made of tunnelling in the preparations for the battle of Loos.) A short chapter on Gallipoli follows. The authors then describe how, in 1916, an Inspector and Controllers of Mines were appointed, and how the work of the Companies was thus co-ordinated and continuity of policy ensured. The work done to assist the attacks on the Somme, at Arras, and at Messines is fully described and criticisms made when failures occurred in co-operation. Attention is drawn to the unfortunate results of firing the Hawthorne Ridge mine ten minutes before zero on 1st July, 1916. The preparations and effects of the mines fired to assist the Messines attack are fully described.

The book goes on to show that after Messines little active mining was undertaken, but Companies were fully employed on constructing deep dugouts and subways and on making roads and tracks. The fortunes of the various Companies during the German attacks in March and April 1918 are detailed and a full description given of the work done by Tunnellers at Givenchy which greatly assisted in enabling that key position to be held. It then tells how, during the subsequent advance, their chief role was the detection and removal of enemy traps and delay action mines. The dangers and difficulties of this work are well brought out. A tribute to the canary and the white mouse—strange additions to the ration strength of the Companies, follows and the book concludes with some suggestions for the future. It is interspersed with anecdotes stressing the special perils to which Tunnellers were exposed, these being taken from official reports. It is well illustrated throughout.

The book should be of interest to every keen soldier. The reader may not agree with all the comments and suggestions in it, but they should give him plenty of cause for thought.

Napoleon and Waterloo. By Major A. F. Becke. (Kegan Paul). 10s. 6d.

Though described as the second edition of the two-volume work by the same author published in 1914, this book has been so thoroughly revised and drastically cut down, and so much new matter has been added, that it is in reality almost a new work. Major Becke is to be congratulated on undertaking this arduous work amid his other responsible labours; the result is that we now get, within a compass and price that brings the book within reach of a much wider public, the results of his profound researches extending over a period of thirty years.

Of the new matter the most important is the author's contribution to the problem of Napoleon's health. Major Becke claims, though with becoming modesty, to have discovered the nature of the " mysterious malady " which afflicted the Emperor so markedly during his last campaign. We will not disclose its nature here; only experts are competent to discuss it, and no doubt the pages of the *Lancet* will shortly be filled with the subject. Another interesting feature is the theory propounded to account for the mystery of the " de la Bédoyère note," which played such a big part in the d'Erlon episode. Again we will leave the reader to discover it for himself.

Though the story, as might be supposed from the title, centres round Napoleon, the whole campaign is dealt with in all its aspects; it is, in fact, a balanced account. Major Becke is well known as a meticulously accurate writer who goes to immense trouble to verify his facts, and we aver with some confidence that none of them will be successfully disputed. But he is not only a master of facts; he is a master of description too; more particularly his discription of the final tragic scene is both

vivid and clear. Most accounts of the battle tend, for some reason, to slur over the details of this phase, once the Middle Guard had broken.

As to the maps, several of which are new, it suffices to say that they are the work of the eminent mappist of the Official History of the Great War. We may however be permitted to express our regret that it has not been possible to reproduce the beautiful coloured maps of the first edition.

Every Mess in the Army should obtain a copy of this book, and no student of Napoleon or of Waterloo can afford to ignore it.

Order of Battle of Divisions—Part 2A. The Territorial Force Mounted Divisions and 1st Line Territorial Force Divisions. Published by direction of the Historical Section of the Committee of Imperial Defence. (H.M. Stationery Office). 10s. Postage extra.

This publication contains a record of services of the fourteen 1st Line Territorial Force Divisions of England, Wales and Scotland throughout the Great War, 1914–18. A very great deal of information is classified and provided which should be of the particular interest to all who served with the Territorials during the War.

REGIMENTAL HISTORIES

On the Western Front (1st/3rd Battalion Monmouthshire Regiment). (Seargeant Bros., Ltd.).

This history covers the period from the raising of this Territorial unit in 1860 to its disbandment—from heavy casualties—in 1916. The men of Monmouthshire, as Major-General Lord Treowen has pointed out, have always been a martial race. They were the men who fought at Crécy, where as Shakespeare has recorded, they did " goot service wearing leaks in their Monmouth caps."

The battalion was mobilized in August, 1914, and completed its training by January, 1915. On 11th February, 1915, the Welsh Division, of which the battalion formed part, was inspected by His late Majesty King George V. By the end of the month, the battalion crossed the Channel and joined the 83rd Infantry Brigade (Brigadier-General Boyle) belonging to the 28th Division (Major-General Bulfin). From 4th to 8th May, 1915, the unit faced its hardest trial and took part in some of the fiercest fighting of the War. The 83rd Brigade, which was holding the apex of the Ypres Salient, about Frezenburg, bore the brunt of the German onslaught in those days of confused and desperate fighting known as Second Ypres. The fact that the battalion was reduced to 4 officers and 130 men gives some idea of what it suffered and how it fought. After the battle, Sir John French, who paid a special visit to the Brigade, said : " I want you one and all to understand how thoroughly I realize and appreciate what you have done. I wish to thank you, each officer, non-commissioned officer, and man for the services you have rendered . . ."

The History of the 2nd Battalion 6th Rajputana Rifles (Prince of Wales' Own). By H. G. Rawlinson, C.I.E. (Oxford University Press). 15s.

This book depicts the history of the 2nd Battalion 10th Regiment, Bombay Native Infantry, which was its title when it was raised in 1817, up to the present day. Captain J. A. Wood of the Regiment was awarded the V.C. in 1856 for gallantry in the attack on the port of Reshire, in the Persian Gulf and was the first officer of the Indian Army to be awarded this high honour.

In the Great War, the battalion—styled the 120th Rajputana Infantry—formed part of the 18th (Belgaum) Infantry Brigade belonging to the 6th (Poona) Division. In November, 1914, it went to Mesopotamia and fought at the battles of Qurna, Shaiba, Nasiriya, Kut-al-Amara and Ctesiphon. The battalion formed part of the garrison at the siege of Kut, where it was finally captured, together with the rest of the 6th (Poona) Division. It was later reformed and was on field service from 1918–20 in South Persia and again in 1930 against the Afridis. During the Great War, the Regiment lost eleven British Officers, six Indian officers and 606 other ranks killed or dead. These losses, which amount to approximately 100 per cent. of officers and other ranks on the strength of the battalion—not counting wounded—give some idea of the high standard of bravery and devotion to duty of this Indian Regiment.

The author is to be congratulated on a well-written and most interesting volume.

The History of the Sikh Pioneers (23rd, 32nd and 34th). By Lieutenant-General Sir George MacMunn, K.C.B., K.C.S.I., D.S.O. (Sampson Low, Marston & Co., Ltd.).

This history covers the deeds of the three Regiments of Sikh Pioneers from the raising of the 24th Sikh Pioneers—later the 32nd—in 1857 to the disbandment of the whole Corps—for financial reasons—in 1932.

The campaigns of the Pioneer Regiments are too numerous fully to mention here but the Indian Mutiny, the China Expedition, the Umbayla and Abyssinian Campaigns, the Second Afghan War, Tibet, and the Great War may be quoted. There were in all twelve battalions of Pioneers in the Indian Army in 1914. The Pioneers' Honours included "France and Flanders, 1914–15"; "Neuve Chapelle," "Ypres 1915." "Loos," "Mesopotamia, 1916–18," "Baghdad," "Palestine, 1918" and "Megiddo." During the short period 24th October–1st November, 1914, while holding the line near Estaires, the 34th Pioneers lost 6 British and Indian officers and 204 Indian other ranks killed and wounded, in stemming a fierce German counter-offensive.

The history is brightened by numerous excellent photographs, and there is an adequate index and maps.

A CORRECTION

Historical Records of The Buffs, 1704—1914. By Captain C. R. B. Knight.

In the notice of the two new volumes of this Regimental History which appeared in the Review of Books in the JOURNAL for November, 1935, they were referred to as Vols. I and II. The correct description is "Vol. II, Parts I and II."

Vol. I, by the late Captain H. R. Knight, father of the author of the new volume, appeared in 1905, and contains the history of the Regiment from 1572 to 1704. The third volume, by the late Colonel R. S. H. Moody, was published in 1922 and tells the story of the Regiment in the Great War, from 1914 to 1918.

ADDITIONS TO THE LIBRARY

GENERAL

EGYPT. By Lieut.-Colonel Elgood. 3s. 6d. 8vo. (Arrowsmith).

ETHIOPIAN REALITIES. By Major Polson Newman. 3s. 6d. 8vo. (G. Allen and Unwin, Ltd.). Presented by the Publisher.

GUARDING THE FRONTIER—A STUDY OF FRONTIER DEFENSE 1815–1825. By E. B. Wesley. $2.50. 8vo. (University of Minnesota Press). Presented by the Publishers.

JAPAN MUST FIGHT BRITAIN. By Lieut.-Commander Iota Ishimara. Translated by Instructor-Captain G. V. Rayment, R.N. 15s. 8vo. (Hurst & Blackett).

THE CASE FOR CAPITALISM. By Hartley Withers. 2s. 6d. 8vo. (Everleigh Nash & Grayson, Ltd.).

AUSTRALIA'S IMMINENT PERIL. By Captain Selwyn Day, R.N.R. 2s. 8vo. (New Century Press, Ltd., Sydney, and Clive & Co., Ltd., London, E.C.4). Presented by the Publishers.

PRISONERS GRAVE AND GAY. By Lieut.-Colonel R. S. Bond. 7s. 6d. 8vo. (Wm. Blackwood & Sons, Ltd.).

WHITAKER'S PEERAGE: BARONETAGE, KNIGHTAGE AND COMPANIONAGE. 1936. 25s. 8vo.

THE WRITINGS AND CORRESPONDENCE OF THE TWO RICHARD HAKLUYTS. 2 Vols. 8vo. (The Hakluyt Society). Series II. Vols. LXXVI and LXXVII.

ENGLAND AND THE NEAR EAST—THE CRIMEA. By H. Temperley. 25s. 8vo. (Longmans, Green & Co.). Presented by the Publishers.

THE ROAD TO GLORY. By F. Britten Austin. 7s. 6d. 8vo. (Thornton Butterworth, Ltd.).

THE PROBLEM OF JAPAN. By Captain M. D. Kennedy. 15s. 8vo. (Nisbet & Co.).

THE IDENTIFICATION OF FIREARMS AND FORENSIC BALLISTICS. By Major G. Burrard. 12s. 6d. 8vo. (Herbert Jenkins, Ltd.).

JAPAN AND THE PACIFIC. By N. Peffer. 10s. 6d. 8vo. (Hamish Hamilton, Ltd.).

THE ICONOGRAPHY OF THE FIRST DUKE OF WELLINGTON. By Lord Gerald Wellesley and John Steegman. 18s. 8vo. (J. M. Dent & Sons).

FIFTY YEARS WITH JOHN COMPANY. By Ursula Low. 15s. 8vo. (John Murray). Presented by the Author.

DE GENGIS-KHAN À STALINE OU DES VICISSITUDES D'UNE MANŒUVRE STRATÉGIQUE (1205–1935). By Admiral Castex. Frs. 10. 8vo. (Société d'Editions Géographiques, Maritimes et Coloniales, Paris). Presented by the Publishers.

ARMED INTERVENTION IN RUSSIA, 1918–1922. By W. P. Coates and Z. K. Coates. 10s. 6d. 8vo. (Victor Gollancz).

SURVEY OF INTERNATIONAL AFFAIRS, 1934. By A. J. Toynbee, assisted by V. M. Boulter. 28s. 8vo. (Oxford University Press).

SAWDUST CÆSAR. By George Seldes. 12s. 6d. 8vo. (Arthur Barker, Ltd.).

MAGNA BRITANNIA. By J. Coatman. 10s. 6d. 8vo. (Jonathan Cape).

ENGLAND. By D. Jerrold. 5s. 8vo. (Arrowsmith).

INSIDE EUROPE. By J. Gunther. 12s. 6d. 8vo. (Hamish Hamilton).

THE ANVIL OF WAR—LETTERS BETWEEN F. S. OLIVER AND HIS BROTHER, 1914–1918. Edited by Stephen Gwynn. 12s. 6d. (Macmillan & Co.).

COMMAND PAPER NO. 5107—STATEMENT RELATING TO DEFENCES. 3d. Pamphlet. (H.M.S.O.).

GENGHIS-KHAN. By Ralph Fox. 12s. 6d. 8vo. (John Lane, The Bodley Head).

GALLIPOLI—THE FADING VISION. By John North. 15s. 8vo. (Faber & Faber, Ltd.). Presented by the Publishers.

THE MEMOIRS OF GENERAL DE CAULAINCOURT, DUKE OF VICENZA, 1812–1813. Edited by Jean Hanoteau. Translated by Hamish Miles. 30s. 8vo. (Cassell & Co.).

SWORD AND STIRRUP. By H. de Montmorency. 16s. 8vo. (G. Bell & Sons, Ltd.). Presented by the Publishers.

GENERAL SMUTS. By Sarah G. Millin. 18s. 8vo. (Faber & Faber, Ltd.).

DARDANELLES DILEMMA. By E. Keble Chatterton. 21s. 8vo. (Rich & Cowan).

FIFTY YEARS OF MY LIFE. By Sir John Astley. 8vo. (Hurst & Blackett).

SPORTSMEN PARSONS IN PEACE AND WAR. By Mrs. Menzies. 8vo. (Hutchinson).

AFRICAN INCIDENTS. By A. B. Thruston. 8vo. (Murray).

A BROTHERHOOD OF HEROES. By S. Gwynn. 8vo. (Mowbray).

A MIDDY'S RECOLLECTIONS, 1853–1860. By V. A. Montagu. 8vo. (Adam & Black).

The above five books presented by the Rev. G. Hawkes Field.

OLD SOLDIER SAHIB. By Private F. Richards, D.C.M., M.M. 7s. 6d. 8vo. (Faber & Faber, Ltd.). Presented by the Publishers.

BY AND LARGE. By Admiral Sir Barry Domvile. 12s. 6d. 8vo. (Hutchinson & Co.). Presented by the Publishers.

A PALADIN OF ARABIA—THE BIOGRAPHY OF BT. LIEUT.-COLONEL G. E. LEACHMAN. By Major N. N. E. Bray. 12s. 6d. 8vo. (John Heritage, The Unicorn Press, Ltd.).

WASSMUSS—"THE GERMAN LAWRENCE." By C. Sykes. 10s. 6d. 8vo. (Longmans, Green & Co.).

ARMAMENTS YEAR BOOK, 1935. Issued by the League of Nations. 25s. 8vo. (Allen & Unwin).

HAIG. Vol. 2. By Duff Cooper. 25s. 8vo. (Faber & Faber, Ltd.). Presented by the Publishers.

FLYING AND SOLDIERING. By R. R. Money. 8s. 6d. 8vo. (Ivor Nicholson & Watson).

NAVAL

THE PRIVATE PAPERS OF JOHN, EARL OF SANDWICH, FIRST LORD OF THE ADMIRALTY, 1771–1782. Vol. III. May, 1779–December, 1780. Edited by G. R. Barnes and J. H. Owen. 8vo. (Navy Records Society). Vol. LXXV.

THE TOMLINSON PAPERS—SELECTED FROM THE CORRESPONDENCE AND PAMPHLETS OF CAPTAIN R. TOMLINSON, R.N., AND VICE-ADMIRAL N. TOMLINSON. Edited by J. G. Bullocke. 8vo. (Navy Records Society). Vol. LXXIV.

THE REALITIES OF NAVAL HISTORY. By Brian Tunstall. 6s. 8vo. (George Allen & Unwin, Ltd.).

NAVAL ODYSSEY. By T. Woodroffe. 10s. 6d. 8vo. (Jonathan Cape).

NAVAL WARFARE—AN INTRODUCTORY STUDY. By Commander J. Creswell, R.N. 10s. 6d. 8vo. (Sampson Low, Marston & Co.). Presented by the Publishers.

THE BATTLE OF JUTLAND. By Commander H. H. Frost, U.S.N. 20s. 8vo. (B. F. Stevens & Brown, Ltd.). Presented by the Publisher.

MILITARY

FIFTY-FIVE TRENCH AND SITUATION MAPS, GREAT WAR, WESTERN FRONT, 1915. Presented by Colonel S. L. Barry, C.M.G., C.B.E., M.V.O., D.S.O.

MOUNTAIN WARFARE ON THE SAND MODEL. By Major D. B. Mackenzie. 3s. 6d. 8vo. (Gale & Polden, Ltd.). Presented by the Publishers.

TUNNELLERS. By Captain W. Grant Grieve and B. Newman. 15s. 8vo. (Herbert Jenkins, Ltd.). Presented by the Publishers.

FRENCH REPLIES TO HAIG. By Major the Hon. E. G. French. 10s. 6d. 8vo. (Hutchinson & Co.).

REMINISCENCES OF A COMMAND DEPOT. By Captain W. H. B. Somerset. (Pamphlet). Presented by the Author.

MEMORIES OF A MESSING OFFICER. By Captain W. H. B. Somerset. (Pamphlet). Presented by the Author.

FIELD SERVICE REGULATIONS. Vol. II. 1935. 1s. 8vo. (H.M.S.O.).

FIELD SERVICE REGULATIONS. Vol. III. 1935. 6d. 8vo. (H.M.S.O.).

THE SOLDIER'S COMPANION OR MARTIAL RECORDER. Vol. I. 8s. 6d. 8vo. (Edward Cock, London, 1824).

MUSKETRY REGULATIONS AND HYTHE TEXT-BOOK AND STANDING ORDERS, 1864. Bound in one Volume. 8vo.

The above two books were presented by Major F. V. Longstaff.

CELEBRITIES OF THE ARMY. Edited by Commander C. N. Robinson, R.N. Fo. (George Newnes, Ltd., 1900). Presented by Captain C. H. Massé, R.A.S.C.

LE PLAN DE CAMPAGNE ALLEMAND DE 1914 ET SON EXECUTION. By R. Kann. Frs. 10. 8vo. (Payot, Paris). Presented by Captain G. S. Fillingham, M.C.

REGIMENTAL HISTORY. By Major W. C. Likeman. 3s. 6d. 8vo. (W. May & Co.).

NAPOLEON AND WATERLOO. By Major A. F. Becke. 10s. 6d. 8vo. (Kegan Paul, French, Trubner & Co.). Presented by the Publishers.

The following Papers relating to the South African War, presented by Colonel S. L. Barry, C.M.G., C.B.E., M.V.O., D.S.O. :—

DIARY OF THE CAVALRY DIVISIONAL SIGNALLING OFFICER, 1900. MS.

INTELLIGENCE PAPERS AND SUMMARIES. 6 Vols.

BOER ARMY LIST, 1901.

ERMELO POST TRANSLATION. 2 Vols.

BRANDWACHT TRANSLATION.

The following Papers relating to the Great War, 1914–1918, presented by Colonel S. L. Barry, C.M.G., C.B.E., M.V.O., D.S.O. :—

STATEMENT OF FORCES IN THE FIELD, 1914–1918. 15 Vols.

STATEMENT OF HOME FORCES, COMMANDS, ETC. 6 Vols.

AIR RAIDS. 2 Vols.

LETTERS FROM HELLES. By Colonel Sir H. Darlington, K.C.B. 5s. 8vo. (Longmans, Green & Co., Ltd.). Presented by the Publisher.

AN ELEMENTARY STUDY OF APPRECIATIONS, ORDERS AND MESSAGES. By Major W. K. M. Leader, M.C. 7s. 6d. 8vo. (Sifton Praed & Co., Ltd.). Presented by the Publisher.

A BAR-LE-DUC PENDANT LE GUERRE. By Colonel Chevalier. 8vo. (Contant-Laguerre, Bar-le-Duc). Presented by the Librarian, Imperial War Museum

ON AND OFF DUTY. Pictured by R. Simkin. 8vo. (Dean & Sons, Ltd.). Presented by Lieut.-Commander H. Pursey, R.N.

REGIMENTAL HISTORIES

HISTORICAL RECORDS OF THE BORDER YEOMANRY REGIMENTS. By Eng-Lieut. Benson F. M. Freeman, R.N. 8vo. (Extracted from the Transactions of the Hawick Archæological Society). Presented by Captain T. P. Milne-Home.

THE HISTORY OF THE 2/6TH RAJPUTANA RIFLES (PRINCE OF WALES' OWN). By H. G. Rawlinson. 15s. 8vo. (Oxford University Press). Presented by the officers of the Regiment.

A HISTORY OF THE SIKH PIONEERS. By Lieut.-General Sir George MacMunn. 8vo. (Sampson Low, Marston & Co., Ltd.). Presented by Lieut.-General Sir H. Cooke, K.C.B., K.B.E., C.S.I., and the officers, Sikh Pioneers.

HISTORY OF THE VOLUNTEER MOVEMENT IN CHESHIRE, 1914–1920. Edited and compiled by E. J. W. Disbrowe. 8vo. (Swain & Co., Stockport). Presented by Lieut.-Colonel Sir Alan Sykes, Bart., V.D., M.P.

ON THE WESTERN FRONT—1/3RD BATTALION MONMOUTHSHIRE REGIMENT. Compiled by W. H. B. Somerset, H. G. Tyler and L. D. Whitehead. 8vo. (Searjeant Bros., Ltd., Abergavenny). Presented by W. H. B. Somerset, Esq.

ROYAL UNITED SERVICE INSTITUTION

Hundred-and-Fifth Anniversary Meeting

TUESDAY, 3RD MARCH, 1936.

ADMIRAL SIR WILLIAM E. GOODENOUGH, G.C.B., M.V.O. (Chairman of the Council), presiding.

THE CHAIRMAN: I will ask the Secretary to read the notice convening the meeting.

THE SECRETARY—Captain E. Altham, C.B., R.N., read the notice published in *The Times* of Monday, 24th February, 1936.

ANNUAL REPORT FOR 1935

The Council have the honour to present their Annual Report for the year 1935.

SILVER JUBILEE OF H.M. THE KING.

The following Loyal Address was sent through the Home Secretary to His Majesty the King on the occasion of his Silver Jubilee :—

MAY IT PLEASE YOUR MAJESTY

The Chairman, Council, and Members of the Royal United Service Institution, with humble duty to Your Majesty, beg leave to offer their loyal congratulations on the completion of the twenty-fifth year of Your Majesty's reign.

This Institution is composed of those who have the honour of holding Your Majesty's Commission and they take this opportunity of re-affirming their devotion to Your Throne and Person.

The Institution has been honoured by Your Majesty's patronage and by the personal visits and gifts both of Your Majesty and Her Majesty the Queen.

They trust that Your Majesty may long be spared to exercise the wise and beneficent rule which Your Majesty's subjects have so long been privileged to enjoy.

I remain, with the profoundest veneration, Your Majesty's most faithful subject and devoted servant,

(*Signed*) W. E. GOODENOUGH, Admiral,
Chairman of the Council.

TO THE KING'S MOST EXCELLENT MAJESTY.

The following reply was received :—

SIR,

I am directed by the Secretary of State to say that he has been Commanded by The King to convey to you His Majesty's thanks for the loyal and dutiful Address from the Chairman, Council and Members of the Royal United Service Institution on the completion of the Twenty-fifth Year of His Majesty's Reign and to assure you that His Majesty deeply appreciates the sentiments of loyalty and affection to which it gives expression.

I am, Sir,

Your obedient servant,

(*Signed*) H. A. STRUTT.

JUBILEE CELEBRATIONS

Special Exhibitions representative of the three Services were organised in the Crypt. These included :—

Navy.—The Naval Review depicted in miniature models of every man-of-war present ; a series of Charts of great naval reviews, lent by the Hydrographer of the Navy ; a set of models typifying the development of the battleship during the past twenty-five years.

Army.—A 40-ft. diorama depicting the Mechanized Army in miniature, including base headquarters, a base camp, the forward area, and the battle area. The models and personnel for this exhibit were kindly lent by Mr. A. Leicester Hewitt.

Air Force.—Scale models of aeroplanes, showing the development of Service aircraft during the past twenty-five years.

FLOOD-LIGHTING OF THE BANQUETING HOUSE

Through the courtesy of Messrs. Allom Bros., and by arrangement with H.M. Office of Works, the Banqueting House was flood-lit during Jubilee Week.

VISIT OF H.R.H. THE DUKE OF YORK

H.R.H. The Duke of York came to the Institution on 19th December to preside at a General Council Meeting of King George's Fund for Sailors, which was held in the theatre. He was received by Admiral Sir William Goodenough, G.C.B., M.V.O., Chairman of the Council. Subsequently he visited the Crimean Exhibition in the Museum.

VICE-PRESIDENTS

The Council regret to have to record the death of Field Marshal the Viscount Byng of Vimy, G.C.B., G.C.M.G., M.V.O., LL.D.; and of Admiral of the Fleet the Earl Jellicoe, O.M., G.C.B., G.C.V.O., LL.D.

Field-Marshal Sir Philip Chetwode, Bart., G.C.B., G.C.S.I., K.C.M.G., D.S.O., and Admiral Sir George P. W. Hope, K.C.B., K.C.M.G., have been elected Vice-Presidents to fill these vacancies.

COUNCIL

The Council regret to have to record the death of Colonel Lord Ampthill, G.C.S.I., G.C.I.E., the representative of the Militia on the Council since 1921.

Admiral the Earl of Cork and Orrery, G.C.V.O., K.C.B., has been elected to fill the naval vacancy caused by Admiral Sir George Hope's election to Vice-President; and Brigadier-General S. E. Massy-Lloyd, C.B.E., has been elected as the Militia representative.

The following Members of the Council, having completed three years service, retire :—

ROYAL NAVY

Admiral of the Fleet Sir Roger J. B. Keyes, Bt., G.C.B., K.C.V.O., C.M.G., D.S.O., M.P.

REGULAR ARMY

* Lieut.-General Sir C. J. C. Grant, K.C.V.O., C.B., D.S.O.

Major-General E. K. Squires, D.S.O., M.C.

TERRITORIAL ARMY

*Colonel The Viscount Cobham, T.D.

*Colonel J. Josselyn, C.M.G., D.S.O., O.B.E., T.D.

INDIAN ARMY

*Lieut.-General Sir J. F. S. D. Coleridge, K.C.B., C.M.G., D.S.O.

Of the above, those marked * offer themselves for re-election. This leaves one vacancy for the Royal Navy and one foi the Regular Army.

REPRESENTATIVE MEMBERS

Rear-Admiral J. A. G. Troup, C.B., has succeeded Rear-Admiral G. C. Dickens, C.B., C.M.G., as Admiralty representative on the Council; Air Commodore W. Sholto Douglas, M.C., D.F.C., succeeds Air Vice-Marshal A. S. Barratt, C.M.G., M.C., *p.s.a.*, as the Air Ministry Representative.

EX-OFFICIO MEMBERS

Air Vice-Marshal A. S. Barratt, C.M.G., M.C., *p.s.a.*, succeeds Air Vice-Marshal W. R. Freeman, C.B., D.S.O., M.C., as an ex-officio Member of the Council on taking up the appointment of Commandant of the Royal Air Force Staff College, Andover.

STAFF

Lieut.-Colonel A. G. Armstrong, *p.s.c.*, I.A., has succeeded Lieut.-Colonel H. G. de Watteville, C.B.E., *p.s.c.*, as Assistant Editor of the Journal.

MEMBERSHIP

The total number of Members on the roll at the end of 1935 was 5,555, as compared with 5,594 in 1934. During the past year 207 Members joined the Institution as compared with 198 in 1934. There were 112 withdrawals, as compared with 133 in 1934; 44 Life Members and 60 Annual Members died, and 30 Members were struck off for being two years in arrear with their subscriptions.

The details of Members joining are as follows :—

Regular Army	115
Royal Navy	29
Indian Army	18
Territorial Army	13
Royal Air Force	12
Royal Naval Reserve	9
Royal Marines	6
Dominion and Colonial Forces	2
Royal Naval Volunteer Reserve	1
Royal Indian Navy	1
Civilian	1
	207

This shows there is a decrease of 39, but as the loss of Life Members does not affect the financial aspect, the financial gain on the year is 5, as compared with a financial loss of 29 in 1934.

SUB-LIEUTENANTS AND SUB-LIEUTENANTS (E) R.N.—LIFE MEMBERSHIP—

The Admiralty have approved that the £10 prize awarded to Sub-Lieutenants and Sub-Lieutenants (E) who obtain all first-class certificates when passing for Lieutenants and Lieutenants (E) R.N., may be devoted to the payment of half their Life Membership of the Royal United Service Institution.

FINANCE

Receipts.—The following is a comparison of receipts under the principal headings :—

	1935 £	s.	d.	1934 £	s.	d.
Annual Subscriptions	5,075	5	6	5,044	4	6
Life Subscriptions	105	1	0	88	7	0
Entrance Fees	142	16	0	147	0	0
Museum Takings	1,445	13	0	1,513	0	6
Journal Sales	794	10	6	735	8	10
Dividends and Interest	508	7	2	391	17	0

Both the Annual and Life subscriptions show an increase on 1934.

The Museum Takings show a decrease of £67 7s. 6d. as compared with 1934, but the figure for that year included a sum of £25 15s. 6d. for the sale of tickets to witness the Royal Procession for the Wedding of H.R.H. The Duke of Kent.

In the light of two-and-a-half years' experience, it has been decided to continue the additional cheap afternoon on Wednesday indefinitely.

The Journal Sales show an increase of £59 1s. 8d. on the previous year.

The receipts in respect to dividends and interest show an increase of £118 10s. 2d. as compared with 1934. This is due to the fact that the latter year suffered a loss through certain investments being sold " cum dividend " before re-investment, as explained in the last Annual Report.

Expenditure.—The decoration of the Institution building, and the provision and extra lighting of special exhibitions in connection with the Silver Jubilee celebrations necessitated some increase of expenditure during 1935; and there was a rise in the General Rates amounting to £44 3s. 2d. These items mainly account for the excess of expenditure over income of £134 18s. 8d. during the year.

The General Account was reimbursed by the sale of Stock realising £160 for the payment of that sum for the third and last instalment for the new edition of the Museum Catalogue. In all, Stock amounting to £960 has been sold during the past four years towards meeting £1,054 2s. 6d. Capital Expenditure on re-cataloguing the Library; re-wiring the Crypt to provide improved lighting of exhibits; and the provision of 10,000 copies of the new edition of the Museum Catalogue. As an offset, it may be noted that £1,000 was invested out of accumulated income in 1930 with the object of meeting such exceptional expenses.

Of the Ashburner Legacy of £250 bequeathed for General Purposes in 1934, £175 has been spent, mainly on cleaning and restoring the Institution's oil paintings, nearly all of which are now in very good condition. The remaining £75 is invested.

THE JOURNAL

The growing popularity of the JOURNAL is indicated by the appreciable rise of sales during the past year. Apart from the normal circulation to Members of the Institution, subscribers include a very large number of Service Messes, naval, military, air and other official authorities, and associations in the Dominions, India and the Colonies, and in practically every civilized foreign country. This wide distribution should make the JOURNAL an exceptionally valuable advertising medium, and it is hoped that in future, under a new arrangement which has been come to, this source of income may be increased.

In view of the expansion and modernization of H.M. Forces, special efforts have been made to secure lectures and articles dealing with the latest developments in the Services. The present international crisis brought about by the war between Italy and Abyssinia is being dealt with by expert writers, and is chronicled in a concise form in order that readers may follow the course of events clearly; this will also provide a valuable record for years to come.

Prominence has been given to the scheme inaugurated by the Council for compiling a Summary of Information on the Uniforms, Equipments, and Colours of the British Army, and as a result of the publicity given to this project in the JOURNAL of the Institution and that of the Society for Army Historical Research, there has been a most satisfactory response from the Army.

While there is no dearth of proffered contributions from military contributors, the Editor would welcome more articles from naval and air force writers.

The Council are indebted to the Naval, General, and Air Staffs for their co-operation in compiling the professional Notes, and also to the President of the Royal Naval College, Greenwich; the Commandants of the Imperial Defence College, the Staff College, Camberley, the Royal Air Force Staff College and the Director of the Royal Naval Staff College, for their ready assistance at all times. The thanks of the Institution are also due to those who contributed lectures, articles, and letters to the correspondence section.

THE LIBRARY

The new Library Catalogue, which was brought into use early in 1935, has proved invaluable.

The number of Members, both at home and abroad, who use the Lending Library, continues to increase. Books are now sent to practically every part of the world where British forces are serving, including India and China.

During 1935 one hundred and seventy-three new volumes were added to the Library; this does not include additional copies which had to be purchased to meet the ever growing demand. In order to relieve congestion, five hundred and twenty books were disposed of.

THE MUSEUM

The number of visitors who passed the turnstile during 1935 was 41,382, as compared with 41,834 in 1934. These figures include members of H.M. Services and Police in uniform, Scouts, Guides, and parties from elementary schools, etc., all of whom are admitted free; also friends of Members admitted by ticket, but not those admitted by Members personally through the Institution entrance. The latter numbered 671 in 1935, as compared with 501 in 1934.

The following is a comparison of "free admittance" figures:—

	1935	1934
R.U.S.I. Members' tickets	182	139
Fighting Services and Police	2,667	2,015
Scouts and Guides	775	867
Schools	793	1,070

The number of visitors who paid for admission in 1935 was 36,641 as compared with 37,743 in 1934. The average number of visitors per day when the Museum was open was 103.

Crimean Exhibition

Following on the Special Exhibitions organized for the celebration of the Silver Jubilee of His Majesty King George V., mentioned earlier in this report, a Crimean Exhibition was arranged and opened in time for the Christmas holidays. The considerable collection of relics associated with Alma, Inkerman, Balaclava, Sebastopol, many of the commanders of that campaign, and of Miss Florence Nightingale, already in the possession of the Institution, have been added to by a large number of loans. Amongst those who have made valuable and interesting contributions to the Exhibition are the following Regiments who fought in the Crimea:—

Royal Scots Greys
4th Queen's Own Hussars
12th Royal Lancers
Grenadier Guards
Coldstream Guards
Scots Guards
The Royal Scots
The Royal Fusiliers
The Royal Norfolk Regiment.

The Leicestershire Regiment
The Green Howards
Royal Welch Fusiliers
The Gloucestershire Regiment
The Border Regiment
The South Staffordshire Regiment
The Dorsetshire Regiment
The Welch Regiment
The Loyal Regiment
The Royal Berkshire Regiment
The Middlesex Regiment
The Wiltshire Regiment
The Durham Light Infantry.

Private loans have been made by Lord Raglan, Lieut.-General Sir A. Codrington, Mr. E. Martin, and Lieut.-Colonel and Mrs. Rainsford Hannay. The Institution is also indebted to the Matron of St. Thomas's Hospital, the British College of Nurses and the Wellcome Historical Medical Museum for the loan of pictures and relics of Miss Florence Nightingale. The Guards Club contributed the original model of the Crimean Memorial. The National Maritime Museum lent four beautiful hull models of ships which took part in the naval operations. *The Times* lent a fine diorama of a Crimean scene.

The whole Exhibition is enriched by selected pictures from the Crookshank Collection. It is being continued during the early part of 1936.

War Office Gift of Uniforms

The Army Council have presented to the Institution the Collection of Uniforms (other than those of the Great War) which was formerly maintained by the Royal Army Clothing Department at Pimlico. It is hoped that this will enable the Institution to lend a certain number of specimens to Regimental Museums who may be making their own uniform collections.

New Exhibits

Her Majesty The Queen has presented three pinchbeck coins struck to commemorate the death of the Duke of Wellington.

Other new exhibits include the following :—

Naval.—Bronze bust of Admiral of the Fleet Earl Jellicoe ; Case of miniature water-line models of the Navy of To-day, representing the Home, Mediterranean, and Reserve Fleets ; Model of the Elizabethan galleon "Elizabeth Jonas," made and lent by Captain C. M. Blackman, D.S.O., R.N.

Military.—Statuette of an officer of the 17th Lancers, period 1850, given by Lieut.-Colonel M. B. Savage, C.B.E., D.S.O. ; The Moodie Collection of National Medals (40) commemorating victories during the reign of George III. given by F. S. Phillips, Esq.

Air.—Model of a Handley Page Heyford aircraft, given by Handley Page Ltd.

The Institution is also indebted to generous donors for sixty-one other gifts.

ROYAL UNITED SERVICE INSTITUTION.

BALANCE SHEET, 31ST DECEMBER, 1935.

DR. CR.

	£ s. d.	£ s. d.
To ACCUMULATED FUND—		
Excess of Assets over Liabilities, as at 31st December, 1934	97,680 14 0	
Add: Additions to Museum Exhibits during the year, per contra	255 1 0	
Less: Withdrawals, per contra	40 0 0	
	215 1 0	
	97,895 15 0	
Deduct: Further allocation to Museum and General Purposes out of Legacy from the late Lieut.-Colonel F. J. Ashburner ..	50 0 0	
(NOTE: Unexpended balance £75)		
Depreciation of Investments since 31st December, 1934 ..	185 13 6	
	235 13 6	
	97,660 1 6	
Less: Revenue Account—Balance per annexed Account	134 18 8	
		97,525 2 10
„ MUSEUM EXHIBITS PURCHASE FUND ..		1 4 3
„ LEASEHOLD REDEMPTION FUND		3,729 8 8
„ LIFE SUBSCRIPTION FUND		924 14 7
„ SUBSCRIPTIONS, ETC., PAID IN ADVANCE		239 10 0
„ CREDITORS		1,031 11 3
		£103,451 11 7

BERTRAM ABEL SMITH, *Chairman, Finance Committee.*

E. ALTHAM, *Secretary.*

	£ s. d.	£ s. d.
**By LEASEHOLD BUILDING—Whitehall, S.W.1, at Cost (covered by Insurance for £40,000) ..		23,101 16 8
„ FURNITURE, FIXTURES, FITTINGS, BOOKS, MAPS, CHARTS, etc. (as valued for Insurance at 31st December, 1926, with subsequent additions at cost)		10,229 0 6
„ MUSEUM EXHIBITS, etc. (excluding Loan Collection)—		
As at 31st December, 1934	48,312 7 0	
Additions during the year	255 1 0	
	48,567 8 0	
Deduct: Withdrawals during the year ..	40 0 0	
		48,527 8 0
(NOTE: The Museum Exhibits, including Loan Collection, are covered by Insurance for £58,765 2s. 0d.).		
„ LEASEHOLD REDEMPTION FUND—		
Premiums paid to 31st December, 1934, on Insurance Policies for £23,100 expiring October, 1972	3,663 5 1	
Add: Premium paid during year	66 3 7	
		3,729 8 8
„ LIFE SUBSCRIPTION FUND—		
£698 16s. 10d. 2½% Conversion Loan, 1944–49, at market price, 31st December, 1935 ..	709 6 6	
Cash at Bank on Deposit Account	215 8 1	
		924 14 7
„ INVESTMENTS at Market Price, 31st December, 1935—		
£1,729 15s. 6d. 3½% India Stock ..	1,677 17 7	
£14,202 16s. 0d. 3% Conversion Loan ..	14,877 8 8	
		16,555 6 3
„ DEBTORS AND AMOUNTS PAID IN ADVANCE		340 9 11
„ CASH AT BANK AND IN HAND		43 7 0
		£103,451 11 7

TO THE MEMBERS OF THE ROYAL UNITED SERVICE INSTITUTION.

We have audited the above Balance Sheet dated 31st December, 1935, and have obtained all the information and explanations we have required. In our opinion such Balance Sheet is properly drawn up so as to exhibit a true and correct view of the Institution's affairs according to the best of our information and the explanations given to us and as shown by the books of the Institution.

ALDERMAN'S HOUSE,
BISHOPSGATE, LONDON, E.C.2.
7th February, 1936.

BARTON MAYHEW & CO.,
Chartered Accountants.
Auditors.

BRACKENBURY MEMORIAL FUND.

DR. — 31st DECEMBER, 1935. — CR.

	£ s. d.	£ s. d.		£ s. d.	£ s. d.
To Balance of Fund at 31st December, 1934 :—			By Expenditure on Books, etc.		15 4 5
Cash at Bankers	9 8 10		„ Royal United Service Institution—		
Investment at Market Price	457 17 10		Administration Fee		1 1 0
		467 6 8	„ Depreciation of Investment since 31st December, 1934		11 11 7
„ Dividends Received, Gross		14 14 8	„ Balance of Fund at 31st December, 1935 :—		
			Cash at Bankers	7 18 1	
			Investment at Market Price £421 1s. 0d. 3½% War Loan	446 6 3	
					454 4 4
		£482 1 4			£482 1 4

We have audited the above Statement of the Brackenbury Memorial Fund for the year ended 31st December, 1935, and certify the same to be correct.

ALDERMAN'S HOUSE,
BISHOPSGATE, LONDON, E.C.2.
7th February, 1936.

BARTON MAYHEW & CO.,
Chartered Accountants.
Auditors.

EARDLEY-WILMOT MEDAL FUND.

DR. — 31st DECEMBER, 1935. — CR.

	£ s. d.	£ s. d.		£ s. d.	£ s. d.
To Balance of Fund at 31st December, 1934 :—			By Depreciation of Investment since 31st December, 1934		3 15 0
Cash at Bankers	25 0 9		„ Balance of Fund at 31st December, 1935		
Investment at Market Price	123 15 0		Cash at Bankers	30 0 9	
		148 15 9	Investment at Market Price :		
„ Dividends Received, Gross		5 0 0	£100 5% Conversion Loan, 1944–64 ..	120 0 0	
					150 0 9
		£153 15 9			£153 15 9

We have audited the above Statement of the Eardley-Wilmot Medal Fund for the year ended 31st December, 1935, and certify the same to be correct.

ALDERMAN'S HOUSE,
BISHOPSGATE, LONDON, E.C.2.
7th February, 1936.

BARTON MAYHEW & CO.,
Chartered Accountants.
Auditors.

CHESNEY MEMORIAL MEDAL FUND.

DR. 31st DECEMBER, 1935. CR.

	£ s. d.	£ s. d.		£ s. d.	£ s. d.
To Balance of Fund at 31st December, 1934 :—			By Balance of Fund at 31st December, 1935 :—		
Cash at Bankers	11 7 9		Cash at Bankers	19 8 9	
Investment at Market Price	211 12 0		Investment at Market Price :		
		222 19 9	£230 Bengal & North Western Railway 3½% Preference Stock	217 7 0	
,, Dividends Received, less Tax		7 0 10			236 15 9
,, Income Tax Recovered, 1934–35		1 0 2			
,, Appreciation of Investment to Market Price at 31st December, 1935		5 15 0			
		£236 15 9			£236 15 9

We have audited the above Statement of the Chesney Memorial Medal Fund for the year ended 31st December, 1935, and certify the same to be correct.

ALDERMAN'S HOUSE,
BISHOPSGATE, LONDON, E.C.2.
7th February, 1936.

BARTON MAYHEW & CO.
Chartered Accountants.
Auditors.

TRENCH GASCOIGNE PRIZE FUND.

DR. 31st DECEMBER, 1935. CR.

	£ s. d.	£ s. d.		£ s. d.	£ s. d.
To Balance of Fund at 31st December, 1934 :—			By First Prize Essay, 1934	31 10 0	
Cash at Bankers	86 19 2		,, Second Prize Essay, 1934	21 0 0	
Investments at Market Prices	1,691 9 0		,, Third Prize Essay, 1934	21 0 0	
		1,778 8 2			73 10 0
,, Dividends Received, less Tax		43 5 10	,, Depreciation of Investments since 31st December, 1934		58 12 2
,, Dividends Received, Gross		3 10 0	,, Balance of Fund at 31st December, 1935 :—		
,, Income Tax recovered in respect of year 1934–35		12 11 4	Cash at Bankers	72 16 4	
			Investments at Market Prices :		
			£1,862 London & North Eastern Railway 5% Debenture Stock	1,526 16 10	
			£100 3½% War Loan	106 0 0	
					1,705 13 2
		£1,837 15 4			£1,837 15 4

We have audited the above Statement of the Trench Gascoigne Prize Fund for the year ended 31st December, 1935, and certify the same to be correct.

ALDERMAN'S HOUSE,
BISHOPSGATE, LONDON, E.C.2.
7th February, 1936.

BARTON MAYHEW & CO.,
Chartered Accountants.
Auditors

DR. **REVENUE ACCOUNT FOR THE YEAR ENDED 31ST DECEMBER, 1935.** CR.

1934. £ s. d.		£ s. d.	£ s. d.
2,265 8 0	To Salaries	2,423 8 0	
2,005 7 9	,, Wages and National Insurance	1,842 10 5	
33 14 9	,, Attendants' Clothing	25 7 6	
104 0 0	,, Pensions	130 0 0	
			4,421 5 11
101 13 4	,, Museum Repairs, Sundries and Special Exhibitions		191 5 1
1,390 10 0	,, Journal Printing	1,420 4 9	
321 9 0	,, Journal Postage	335 17 7	
267 11 0	,, Literary Services	251 3 6	
42 1 2	,, Shorthand Notes	35 17 8	
			2,043 3 6
125 10 2	,, Library Purchase and Binding of Books	139 12 0	
54 12 6	,, Periodicals and Newspapers	54 11 6	
			194 3 6
16 19 0	,, Advertising	43 6 6	
14 3 6	,, Lecture Expenses	7 15 6	
			51 2 0
580 0 0	,, Ground Rent	580 0 0	
60 14 6	,, Water Rate	60 14 6	
532 11 6	,, General Rates	576 14 8	
91 19 7	,, Insurance	90 16 4	
			1,308 5 6
114 15 0	,, Fuel	120 10 4	
228 19 7	,, Lighting	279 13 3	
98 8 9	,, General Repairs	77 2 2	
95 19 6	,, House Sundries and Expenses	107 18 3	
	,, Jubilee Decorations	38 15 11	
			623 19 11
52 10 0	,, Audit Fee, 1935	52 10 0	
73 17 6	,, Postages, Telegrams, etc.	77 17 10	
190 1 5	,, Printing and Stationery	195 4 10	
40 13 8	,, Telephone	39 17 3	
4 3 9	,, Travelling Expenses	5 19 0	
			371 8 11
162 16 5	,, Contribution to Staff Pension Scheme		153 1 9
66 3 7	,, Leasehold Redemption Fund		66 3 7
14 15 0	,, Gold Medal for R.U.S.I. Prize Essay, 1934		15 5 0
£9,151 9 11			£9,439 4 8

1934 £ s. d.		£ s. d.	£ s. d.
5,044 4 6	By Members' Subscriptions Received	5,075 5 6	
5 17 0	,, Voluntary Extra Subscriptions	4 16 0	
88 7 0	,, Life Subscriptions—Amount brought to Credit	105 1 0	
147 0 0	,, Entrance Fees	142 16 0	
			5,327 18 6
1,512 0 6	,, Admissions to Museum	1,445 13 0	
56 11 8	,, Sales of Museum Catalogues and Pamphlets	58 9 0	
			1,504 2 0
735 8 10	,, Sales of Journal	794 10 6	
280 17 3	,, Advertisements in Journal	225 4 11	
			1,019 15 5
42 17 9	,, Profit on Repairing Regimental Colours, etc.	29 1 2	
23 9 6	,, Miscellaneous Receipts	19 12 9	
			48 13 11
263 7 0	,, Rent of Lecture Theatre and Offices, etc.		225 9 0
391 17 0	,, Dividends and Interest Received		508 7 2
670 0 0	,, Government Grants		670 0 0
110 8 1 (Surplus)	,, Balance, being Excess of Expenditure over Income for the year, carried to Balance Sheet		134 18 8
£9,151 9 11			£9,439 4 8

THE CHAIRMAN'S ADDRESS

Since our last Anniversary Meeting two momentous events have occurred—the Jubilee Celebrations of twenty-five years of the reign of His late Majesty King George V, who had been our Patron since his Accession in 1910; and his greatly lamented death only eight months later.

The Annual Report which is before you is a record which covers the year ending on the 31st December, 1935.

On the front page of it you will find the Loyal Address which was sent to King George V on the occasion of His Jubilee. In the February JOURNAL you will find the letter of condolence which was sent to His Majesty the King. You will have no doubt read it. No words of mine are necessary to emphasize our feelings as expressed in that letter.

The Council have this afternoon sent their humble petition to His Majesty asking Him to honour the Institution by becoming our new Patron.

They are also asking H.R.H. the Duke of York if he will do us the honour to be our new Vice-Patron.

The Institution has suffered the loss of two exceptionally distinguished Vice-Presidents during the past year by the death, first of Field-Marshal the Viscount Byng of Vimy, and more recently of Admiral of the Fleet the Earl Jellicoe. Not only were they two of the few remaining great Commanders in the late War, but they were both men who enjoyed to an exceptional degree the devotion and trust of those whom they led; and, indeed, of all who knew them and knew of them. We may well be proud of the list of great names which have adorned our Council during the past hundred years. To that list those of Byng and Jellicoe will give additional lustre.

You will welcome the two distinguished officers who have been elected to fill these vacancies on the Vice-Presidents list. Field-Marshal Sir Philip Chetwode comes back from India, where he has spent five years in perhaps the most responsible position a soldier can occupy in peace-time—Commander-in-Chief in India.

Admiral Sir George Hope has served on the Council continuously since 1925, and in 1929 was our Chairman. His wide knowledge of all that appertains to naval study is well known throughout the Service. He now constitutes a connecting-link between this old-established Institution and that child of our conception—the National Maritime Museum. I would emphasize that it was from this Institution that the idea of a National Naval Museum emanated, and that the Maritime Museum, as now being instituted at Greenwich, is a development of that original idea.

Another matter of special importance is to be considered by members of this meeting, and that is the question of membership. The prosperity, and indeed the utility, of this Institution are chiefly dependent on the strength of its membership. During the past few years the influx of new Members has barely balanced the loss of old ones. The Council feel that we ought to be far more embracing. They would like to arrive at a state of affairs whereby the majority of the officers in the fighting Services are Members of the Institution and not, as now, the minority. From the mid-day papers to-day it would appear that H.M. Services, after suffering a reduction for some years, are now to be brought up to strength again. A start has been made with the Air Force, and the papers to-day show that the Army and Navy are about to follow.

It therefore seems opportune to the Council that a special inducement should be offered at this time to as many officers as possible to avail themselves of the facilities and privileges which this Institution can provide. To that end you will be asked to empower the Council to suspend the Entrance Fee for a limited period, which period can be terminated with due notice at the Council's discretion.

The Annual Report is in your hands. It will be convenient to take each section in turn. To the middle of page iv it is merely a record of facts and calls for little comment beyond what has already been said.

With regard to Finance, I would ask the Chairman of the Finance Committee if there are any points which he wishes to raise.

COLONEL B. ABEL SMITH, D.S.O., M.C., T.D., A.D.C. (Chairman of the Finance Committee): I think the financial position is so very fully set out in the Annual Report that it will only be wasting your time if I make any comments.

THE CHAIRMAN: If there are any questions on finance the Chairman of the Finance Committee will be glad to answer them. Now we come to the JOURNAL and the Library.

ADMIRAL SIR R. G. O. TUPPER, G.B.E., K.C.B., C.V.O. (Chairman of the JOURNAL and Library Committee): You will agree with me that our JOURNAL is an extraordinarily good one. We are getting a very good supply of articles from the Army, but with regard to the Navy and the Air Force—especially the Navy—we should like more articles, including some from junior officers.

THE CHAIRMAN: The next item of the Report is that dealing with the Museum. It is greatly to be regretted that owing to illness Colonel Colvin—the Chairman of the Museum Committee, cannot be present. The only remark that there is to be made about the Museum is that we hope to make some alterations in the Trafalgar Model so as to bring it nearer to what we now believe, through various investigations and research, was the actual position of the ships at the time depicted. We also propose to do something to the ships themselves so that they will no longer appear to be sailing dead before the wind no matter what course they are on.

I beg to move:

> "That the Report and Accounts, as circulated, be taken as read and adopted."

THE CHAIRMAN OF THE FINANCE COMMITTEE: I have much pleasure in seconding the resolution.

The Resolution was carried unanimously.

RE-ELECTION OF AUDITORS.

LIEUT.-COLONEL A. H. BURNE, D.S.O., R.F.A.: I beg to move:—

> "That Messrs. Barton, Mayhew & Co. be re-elected Auditors for the ensuing year at a fee of fifty guineas."

COMMANDER W. B. C. ROSS, R.N.: I second that.

The Resolution was carried unanimously.

ALTERATION OF BYE-LAW.

COLONEL J. JOSSELYN, C.M.G., D.S.O., O.B.E., T.D.: Sir, you have already mentioned the resolution which I have to propose, which is the adoption of a temporary bye-law the purpose of which is the suspension as from to-day of the Entrance Fee. The bye-law is shown on the agenda paper, and speaks for itself. There are, however, two points to which perhaps I might call special attention. The first is that officers who, for any reason, may have relinquished their membership prior to this date may rejoin under this new bye-law—that is, without Entrance Fee or other penalty. The other special point is that the Council is empowered by this temporary bye-law to reimpose the Entrance Fee at any time when it may seem fit, and thereby the temporary bye-law comes to an end and the permanent bye-laws as they stand now are automatically reinstated. I do not think there is anything else to call special attention to, and I therefore beg to move that the temporary bye-law as set out on the agenda paper be adopted.

COMMANDER W. W. P. SHIRLEY-ROLLISON, R.N.: I have much pleasure in seconding the proposal.

The Resolution was put and carried unanimously.

VACANCIES ON THE COUNCIL.

THE CHAIRMAN: The following officers have been nominated as candidates for the vacancies on the Council:—

ROYAL NAVY.

Rear-Admiral W. N. Custance.

REGULAR ARMY.

Lieut.-General Sir C. J. C. Grant, K.C.V.O., C.B., D.S.O.
Brigadier R. P. Pakenham-Walsh, M.C., R.E.

TERRITORIAL ARMY.

Colonel the Viscount Cobham, T.D.
Colonel J. Josselyn, C.M.G., D.S.O., O.B.E., T.D.

INDIAN ARMY.

Lieut.-General Sir J. F. S. D. Coleridge, K.C.B., C.M.G., D.S.O.

These nominees were unanimously elected.

THE GOLD MEDAL ESSAY COMPETITION (AIR), 1935.

THE SECRETARY: The subject of last year's Gold Medal Essay was: "To discuss the effect of the development of air power on British interests in the Mediterranean, and suggest how these interests should be protected."

The Gold Medal and First Trench Gascoigne Prize have been awarded to Wing Commander the Hon. R. A. Cochrane, A.F.C., *p.s.a.*, R.A.F.

THE CHAIRMAN, in presenting the Medal and Prize to Wing Commander Cochrane, said: I have particular pleasure in handing these awards to one who has got over that dreadful upbringing which he had as a Midshipman under my care! I congratulate you. (Applause).

THE SECRETARY: The Second Trench Gascoigne Prize has been won by Wing Commander J. O. Andrews, D.S.O., *p.s.a.*, R.A.F. He is unable to be present this afternoon.

The following Officers were honourably mentioned by the Referees:—

Squadron-Leader E. J. Kingston-McCloughry, D.S.O., D.F.C., *p.s.a.*
Squadron-Leader G. S. N. Johnston, *p.s.a.*
Squadron-Leader W. M. Yool, *p.s.a.*
Captain W. R. Patterson, R.N.

THE EARDLEY-WILMOT MEDAL COMPETITION, 1935.

THE SECRETARY: This was the first Eardley-Wilmot Competition. It was founded by a bequest from the late Rear-Admiral Sir Sydney N. Eardley-Wilmot of £100 "to be applied towards the grant of a Gold Medal to be given every five years, commencing the fifth year after receipt of the legacy, for the best essay contributed by a Member of the Institution on 'Changes in Naval Warfare owing to New and Modified Weapons,' to be termed the 'Eardley-Wilmot Medal.'"

The first award is made to Lieutenant-Commander P. W. Brock, R.N. He is unable to be here, but his wife, Mrs. Brock, is here to represent him.

THE CHAIRMAN then presented the Medal to Mrs. Brock with the best wishes and congratulations of the Council. He added: I am glad to give this medal to an officer who is serving in a ship which bears the name of one in which I flew my flag for some time. (Applause).

THE CHESNEY MEDAL, 1936.

THE SECRETARY: The Chesney Medal is awarded to Professor Spenser Wilkinson for his works *The Defence of Piedmont* and *The Rise of General Bonaparte* and for his long and distinguished services to naval and military literature. Professor Wilkinson is unable to be present, but Mrs. Clarke, his daughter, is here to represent him.

THE CHAIRMAN then handed the Medal to Mrs. Clarke, saying: Your father's long and distinguished services to all literature in connection with the defence of this country are very well known to all, and it is a great pleasure to us to be able to show this mark of recognition. I hope you will tell him on our behalf how glad we are to be able to do that. (Applause).

VOTE OF THANKS TO THE RETIRING CHAIRMAN.

GENERAL SIR FELIX READY, G.B.E., K.C.B., C.S.I., C.M.G., D.S.O.: It is with much pleasure that I propose:

> "That the thanks of the Institution be accorded to the retiring Chairman."

It is not generally known, perhaps, that in 1931 the Council, very much to their regret, had to accept the resignation of Admiral Goodenough, who was then Vice-Chairman; but the loss to this Institution was the gain of the Royal Geographical Society, who obtained his services as their President. Fortunately two years ago we were able to recapture his services as our Vice-Chairman, and to-day we have to thank him for a very active and successful term of office.

Although, under our constitution, we are not able to retain his services as our Chairman, I hope very much that we shall continue to have the benefit of his great experience and wide knowledge of men and matters and, if I may also add, his great sense of humour, as a senior Member of the Council.

ADMIRAL THE EARL OF CORK AND ORRERY, G.C.V.O., K.C.B.: I should like to associate myself with all the remarks made by Sir Felix Ready and to second the resolution which he proposed.

The Resolution was carried by acclamation.

THE CHAIRMAN: I thank you very much. The post of Chairman of this Institution is a very delightful one, and I am sure that each succeeding Chairman enjoys to the full his year of office. Perhaps one of his greatest enjoyments is to work with our Secretary, Captain Altham (Hear, hear), and his admirable staff. One thing for which I thank Captain Altham particularly is that he never assumes that attitude which one can say from one's experience other permanent officials sometimes assume—that attitude of "possession." He is always ready to give his assistance with his great experience in the Institution. He has no other wish in his mind but to do well for the Institution, and the consequence is a very delightful connection (Hear, hear).

I am very glad to be able to announce to the Institution that I am succeeded by someone who has had a long and distinguished service; we have in Sir Felix Ready a man who is "both happy and prepared"! (Applause).

That concludes our business.

Printed by J. J. KELIHER & Co., LTD., Marshalsea Press, Southwark, S.E.1

NOW READY.

THE

CAVALRY JOURNAL

Published under the authority of the Army Council, under the direction of Field-Marshal the Viscount ALLENBY, G.C.B., etc. (Colonel Life Guards and 16th/5th Lancers), assisted by Lieut.-General Lord BADEN-POWELL, G.C.B., G.C.V.O., etc. (Colonel 13th/18th Hussars), Field-Marshal Sir P. W. CHETWODE, Bt., G.C.B., K.C.M.G., D.S.O., Major-General A. E. W. HARMAN, C.B., D.S.O., A.D.C., etc., and Major-General T. T. PITMAN, C.B., C.M.G. (Managing Editor).

PUBLISHED QUARTERLY, Price 5s. net.

No. 100. APRIL, 1936.

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The Late King George V. (Frontispiece). In Memoriam: G.R. The Yeomanry at Gaza II. (April 17th-19th, 1917). (Illustrated and Maps). By Major Oscar Teichman, D.S.O., M.C., T.D., late M.O., Queen's Own Worcestershire Hussars). Yeomanry and Tactical Exercises. By a Yeomanry C.O. The Capture of Semakh, 25th September, 1918 (Action by the 4th Australian Light Horse Brigade). (Maps). By Major K. A. McKenzie, D.S.O., Australian Staff Corps. An Attachment to German Cavalry. (Illustrated). By Captain E. R. Sword, 4th Queen's Own Hussars. The Conqueror of Golconda. By Major E. W. Sheppard, O.B.E., M.C. The Sudan Horse. (Illustrated). By Captain J. P. Stanton, Royal Scots Greys. Lake and Victory. Part IV. By Colonel E. B. Maunsell, late 14th P.W.O. Scinde Horse, I.A. The Old Cavalry Cantonment. By Colonel F. A. Hamilton, late 3rd Cavalry, I.A. The Hunting Cheetahs of Kolhapur. By Colonel F. A. Hamilton, late 3rd Cavalry, I.A. Tales of Tomsk: Hippodrome—1919. By Siegfried P. Spinning with a Fixed Spool Reel. (Illustrated). By Richard Clapham. Army Reorganisation. The Bren Light Machine Gun. (Illustrated). Published by permission of the War Office. Notes. Home and Dominion Magazines. Foreign Magazines. Recent Publications. Sporting News.

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THE SOCIETY FOR NAUTICAL RESEARCH.

(FOUNDED 1910)

Patron:

H.R.H. THE DUKE OF KENT, K.G., K.T., G.C.M.G., G.C.V.O.

THE OBJECTS OF THE SOCIETY:

To encourage research into nautical antiquities, into matters relating to seafaring and ship-building in all ages and among all nations, into the language and customs of the sea, and into other subjects of nautical interest.

The Society has erected a Monument to the Van de Veldes in St. James's, Piccadilly; raised £107,000 to save Nelson's Flagship and has superintended the restoration of H.M.S. "VICTORY" to her appearance at Trafalgar; paved the way to the establishment of a National Maritime Museum at Greenwich and a Victory Museum at Portsmouth; organised Exhibitions of Nelson Relics and Naval Prints, etc. at the Guildhall, Whitechapel, Plymouth, Birkenhead and Hull; and issued sundry periodical publications dealing with Nautical Archæology, including a cheap set of official plans (ten in number) for building a model of H.M.S. "Victory."

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